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## CONTENTS

*THE COVER*
A Leap in the Dark
*Photograph by* HOBART V. ROBERTS

*ETIQUETTE AMONG THE BEASTS*
*By* ARCHIBALD RUTLEDGE ..... 579

*THE COVEY COMES HOME*
*By* GEORGE A. SIMMONS ..... 582

*AMERICAN TREES OF TRADITION IMMORTALIZED* 584

*CONSERVATION SIDELIGHTS ON REORGANIZATION* 585

*A UNIQUE DESERT*
*By* LEONARD B. RADTKE ..... 586

*BETWEEN DAYLIGHT AND DAWN*
*By* RAY GWYNN HOGAN ..... 587

*SOME TREES*
*Poem by* ANNE M. ROBBINS ..... 588

*MULE DEER OF MONTANA*
*By* WINTON WEYDEMEYER ..... 589

*THE YAZOO FLOOD AND ITS CAUSES*
*By* H. G. MEGINNIS ..... 592

*THE WILD PIGEON*
*By* H. O. BISHOP ..... 594

*GROWING TIMBER FOR PROFIT*
*By* WILLARD G. BIXBY ..... 599

*EDITORIAL*
State Forestry in Virginia ..... 603

*THROUGH THE LENS*
Photographing Wild Birds and Mammals
*By* JOSEPH S. DIXON ..... 604

*A FOREST PAGE FOR BOYS AND GIRLS*
*Conducted by* WAKELIN McNEEL
The Rise of Johnny Musquash ..... 607

*FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW*—The Cambridge Elm ..... 609

*AROUND THE STATES* ..... 610

*BOOK REVIEWS* ..... 614

*AMONG THE CURRENT PUBLICATIONS* ..... 616

*ASK THE FORESTER* ..... 617

*"WHO'S WHO" AMONG OUR AUTHORS* ..... 624

Notice of change of address of your AMERICAN FORESTS should be received in the office of The American Forestry Association by the fifteenth of the month to affect the following month's issue. For instance, if you desire the address changed for your December number we should be notified of your new address not later than November 15.

H. Armstrong Roberts

**While wild creatures do not have the same code of manners as humans, the author claims for them a systematic decorum,—even a sense of propriety, and an unembarrassed demeanor indicative of soul poise—coupled often with the intellectual quality of good taste and fine perception. The patrician elegance and gallantry of deer particularly impresses.**

AMERICAN FORESTS

Vol. 38 NOVEMBER, 1932 No. 11

# ETIQUETTE AMONG THE BEASTS

By ARCHIBALD RUTLEDGE

"YOU beast!" hisses the haughty heroine to her husband, totally unaware of the high compliment she may be paying him; for wild beasts, as we call them, are frequently courteous, tender-hearted, and considerate to the point of being romantic. They often display an elegance of manner, a *savoir faire* that is the very spirit of gentility. The fact that such a claim is clearly at odds with our preconceived notions makes it all the more interesting to examine.

A small group of artists in England, who lived in a rather bohemian way, and gloried in the name, *The Utopians,* used to call at the home of a certain lord, who appreciated their genius and their wit. His feeling, however, was by no means shared by his stately butler, who, on seeing and hearing the arrival of the rollicking guests, would say, — "Here sir, come the Ethiopians." Many of us regard wild animals as the butler did the artists. Perhaps it will be possible to show that these children of nature not only possess that unembarrassed demeanor which is indicative of soul-poise, but also manifest on many occasions a behavior that has the intellectual quality of good taste and fine perception.

© Donald H. Eaton

**These dainty, frisky little playmates seem to bear out the author's contention that creatures of the wild have achieved supremely in solving the problem of living joyously and completely.**

With us, etiquette means a system of conventional forms required by good breeding, or to be observed in official or social life. Manifestly, wild animals do not have, and should not have, the same code of manners as we are supposed to have; but they do have a systematic decorum, effective for them, and often revealingly helpful to us. Now and then their ideas of propriety are almost comically like ours. Indeed, in what we call *mode,* many children of nature resemble human beings more closely than some human beings resemble each other in their behavior. In a broad sense, in any group of living things, etiquette is what helps fellowship; or, as the French put it, *comme il faut*— as it must be; that is, as it should be if existence is to be what it ought to be.

It is etiquette with us to keep faith with one another. This principle is perhaps more highly thought of, more rigorously observed, and lapses from it are more certain of punishment among animals than among us. Perhaps we are more ready to forgive breaches of trust because with us infractions of faith do not necessarily lead to dangerous consequences. But in the natural world the laws laid down are laws insuring life itself; and one who disobeys usually imperils himself and all his fellows.

As is well known, nearly every group of wild creatures has

a military organization for defense purposes; one feature of this system is the posting of sentinels. In this precaution the common crow is systematic and exacting. When the flock is feeding, there will be one or more watchmen posted on elevations suitable for observation.

One day a big flock of these dusky marauders visited my field of young corn. A black sentry was perched on the top of a dead pine on an adjacent ditch-bank. By getting down in the ditch, I evaded the guard and was able to fire into the flock, disheveling several and routing the whole thieving company. Their dismay was naturally great; but even in the pitch of their hasty retreat they did not forget a primary duty. At least a dozen crows,with loud cawings of disgust and clamorous blame, attacked the sentry, beat him unmercifully, even while all of them were in precipitate flight, and drove him in disgrace, not only far over the forest, but, I believe, completely out of their fellowship. His vital duty had been to give warning of the approach of an enemy. Technically, he had been asleep at his post, and as a result met immediate punishment and probably lasting disfavor.

Clearly, the etiquette of the field and forest has to do with large and vital issues; and for that reason the study of it is far more fascinating and enlightening than the study of human fashion, which may have about it something narrow, paltry, and even sinister. The code of nature is a code of most ancient and practical wisdom, looking toward the security and happiness of those under its dominion.

A friend on whose word I rely told me this interesting story about two gray foxes. One day, walking in the edges of a forest bordering a big cottonfield, he saw a fox coming down one of the rows, dragging something. From his struggles it was evident that Reynard could not quite "get away" with the twenty-pound gobbler he had killed. After some further attempts to move the big bird, the fox left it in the field and trotted away into the forest.

"I walked over to the turkey and picked it up," my friend told me, "but had hardly gained the shelter of the woods when I saw the fox coming back. And this time he had another fox with him. The two sniffed about eagerly and vainly for a few minutes. As the sandy field was very dry, I do not think that either one got my scent. The newcomer was a much larger and darker fox than the one which had made the kill. To my surprise the fox which had been invited, either to a feast there in the field, or to help drag the turkey into the woods, finding things not as they had been represented to him, sprang on his host, and a fierce and prolonged battle ensued, ending with the visitor's driving the other fox on the full run out of the field."

While I cannot be positive in my opinion, it seems likely that the second fox believed himself the victim of a hoax by the first one, and had showed in no uncertain fashion his resentment over the deception.

I once came upon two foxes on a ricefield bank which spanned a quaking morass. As I had approached along another bank, heavily grown to bushes and reeds, the foxes, which were evidently hunting together, did not observe me. I stopped behind a small canebrake to watch them. One lay down under a bush close by the path along the bank. The other slunk away craftily down the side of the bank. Presently I heard a slight noise, and down the bank toward the fox in ambush came the other fox on a full run, a scared rabbit before him. When the panic-stricken fugitive was opposite the fox lying in wait, that crafty creature made a sudden dash at the flying bunny. For some reason the stratagem went wrong, and the rabbit escaped. When the fox which had acted as driver came up, a sharp altercation ensued. He attacked his confederate with unfeigned fury, sure that he had been double-crossed. They broke away from each other only when I came up; and even then, as they raced down the old bank together, they were growling and snapping at each other.

A similar punishment for the same kind of reason I once saw meted out to an old wild gander, leading about thirty of his fellows northward in mid-March. The flock was flying low; and as it passed over a farmer's yard, he ran from his house and began shooting at the geese with a rifle. Almost immediately the great birds, aware of their grave danger but aware also that "some one had blundered," set up a raucous chorus of denunciation, drove their pilot from the point of their V, and as he passed ignominiously back into the ranks, every goose shouted "Shame!" at him and beat him with their heavy wings. What they were really saying was, I suppose, "Hadn't you any better sense than to take us right over that house, and within reach of a gun?"

All these stories show that in the community of wild life, those who are trusted as leaders, those on whom the safety and welfare of others depend, are addressed to the stern service of utter and infallible loyalty. If they fail, they are disgraced.

Is it not interesting to reflect that we, who have presumably come so far in the proud march of civilization, do not expect from our fellows, in the matter just referred to, any more than wild creatures do from theirs? And I am afraid that we are more often disappointed than they are!

In nature we find very little egotism; it is too dangerous, both to the individual and to the species. But it is sometimes manifested in its finest form as a revelation of superiority and originality of spirit, if not an assertion of positive genius. But queer animals, like queer people, usually find themselves left severely alone. Not infrequently a sagacious old wild creature, such as a whitetailed stag, will lose the gregarious instinct and become a solitary, trusting his own safety to none but himself. Each one sets laws for his own propriety—which in nature means his survival under happy conditions.

One form of etiquette that birds and animals apparently observe by instinct, whereas human beings, especially men, have to be sternly drilled to obey, is the matter of personal immaculacy. If cleanliness is next to godliness, then nature's children have come at least halfway toward perfection. The scavengers of the natural world are usually despised because of their habits; yet they are essential to the great system. Many of them are strangely clean,—considering their chances to be otherwise. But, leaving them out of the picture, we shall find in nature's household an extraordinary degree of personal hygiene.

During my roaming of the woods I have seen, I suppose, between two and three thousand wild deer,—at all times of day and night, under many circumstances—lying down, standing, skulking, in easy run, in full flight. I never yet saw an unwounded deer that did not impress me with that patrician elegance, that gallantry of air and of natural vigor that come from a most exacting mode of life. We overindulge; then we diet. I think it safe to say that a wild creature is always on diet. We cage and pen these birds and animals; then we are disgusted with their table manners. But when they are at home, they behave. Even the tiger is naturally a delicate feeder. These children live plainly, and gluttony is practically unknown.

I remember a dismal day in the woods. It had been raining for forty-eight hours. A cold, gusty wind was blowing. The grasses and bushes were reeking. So was I. But all the wild things I saw had their inevitable grace and breeding. Here came a big gray fox-squirrel, running down an old pine log. The weather in no way affected him. He was alert, fluffily dry, amiable, beautiful. I started a deer out of a low,

dense copse. It came out past me,—as lithe, as spruce, as ready as if the day had been still and sunshiny.

Perfect obedience to the laws of personal hygiene—which seems to me a very fundamental form of genuine etiquette—enables beasts and birds to preserve unimpaired their youth and their beauty and their spontaneous natural force, all of which contribute to a certain romance of character.

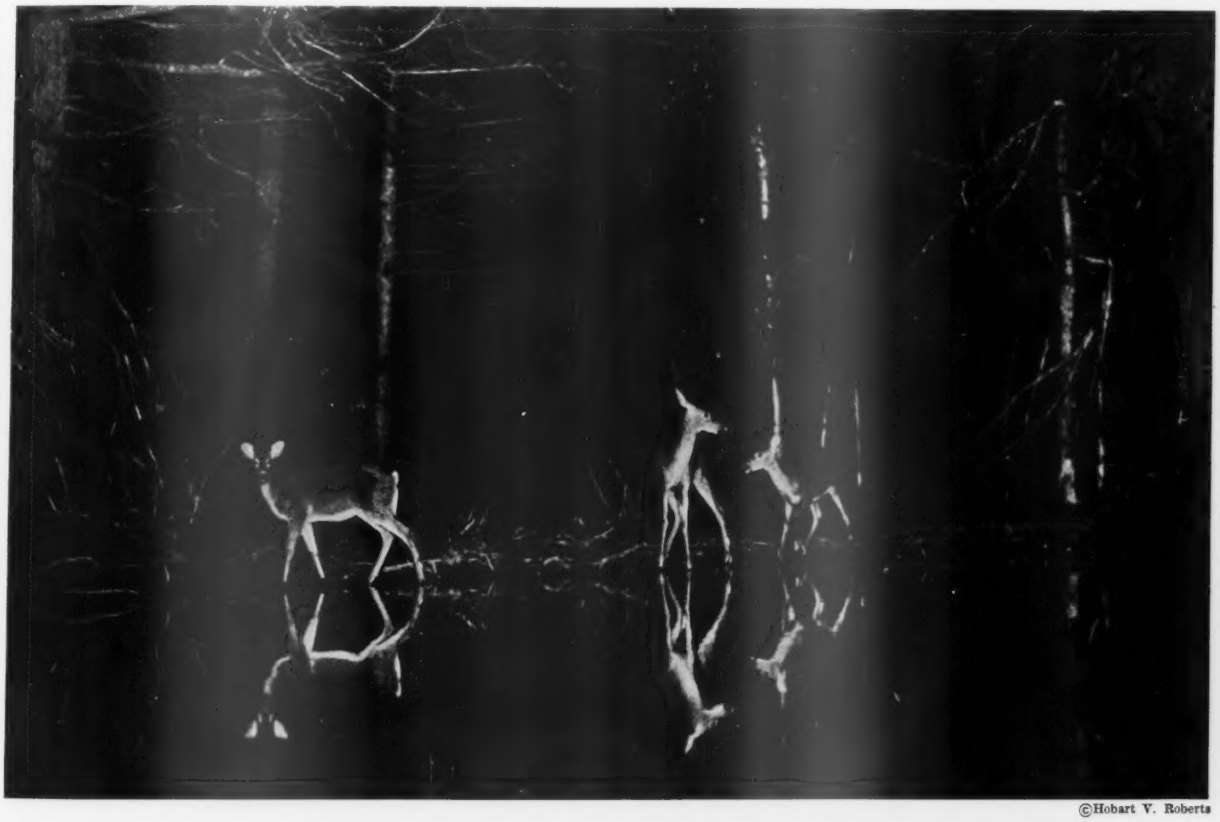
Any observer of the human scene is familiar with the apparent vagaries of people who are falling in love. One certain effect of the powerful operation of this most fundamental and subtle emotion is the creation of a desire to appear unusual, to "show off." It may be called a part of our code of courtship. Love beautifully makes each of us wish to appear in a celestial unwonted light. We want to be different that we may be desired. Perhaps it is thus that most of our heroes, great and small, are made.

Now, this same spirit of emulation, which seems to be with us at all times, is likewise found in the natural world during the rapturous season of love and of mating. It is true especially of the birds, which indulge in a good deal of paradoxical behavior: silent ones begin to chatter and to sing; serious ones become playful and full of pranks; gentle ones become bold; retiring ones become combative; quiet ones become restless; wary and cautious ones develop astonishing carelessness, as if love had mastered for the time the ordinary ruling passion of love of life. In these courting activities variety and abandon are constantly to be noted. But, while we often like to astonish the whole world with our superiority, a wild creature makes himself exceptional only that he may be loved by another.

Among the birds characterized ordinarily by a high intelligence guiding an excessive wariness, none is more worthy our admiration than the wild turkey. I remember how impressed I was over the complete reversal of behavior that an old wild gobbler of my acquaintance manifested. Not so much ordinary music, but rather the dulcet strains from the lyric lyre of love,—that is the music that has charms to soothe the savage breast. "Perfect love casteth out fear" in a physical as well as a spiritual sense.

This lordly bird lived on a lonely peninsula of the plantation that was bordered by two wide and deep-flowing creeks. Throughout one entire winter I tried to cultivate his acquaintance; but I saw him only once, and that far off, when he flew over one of the creeks. The winter was a dry one, and many of the cypress ponds in the woods were empty. As is often the case with secretive wild things, by their tracks you shall know them. I learned of the size of this bird and the nature of his range through finding his great sprawled tracks in the damp black beds of the dried ponds. He was solitary to the point of being socially exclusive in that utterly utter way. All my coaxings with a variety of calls failed to produce on his part the faintest response.

Then came the springtime stealing on jeweled feet through the southern woodlands, with her magic wand touching to light and to beauty the bush and the tree and the flower, filling with silver rains the dark (*Continuing on page* 602)



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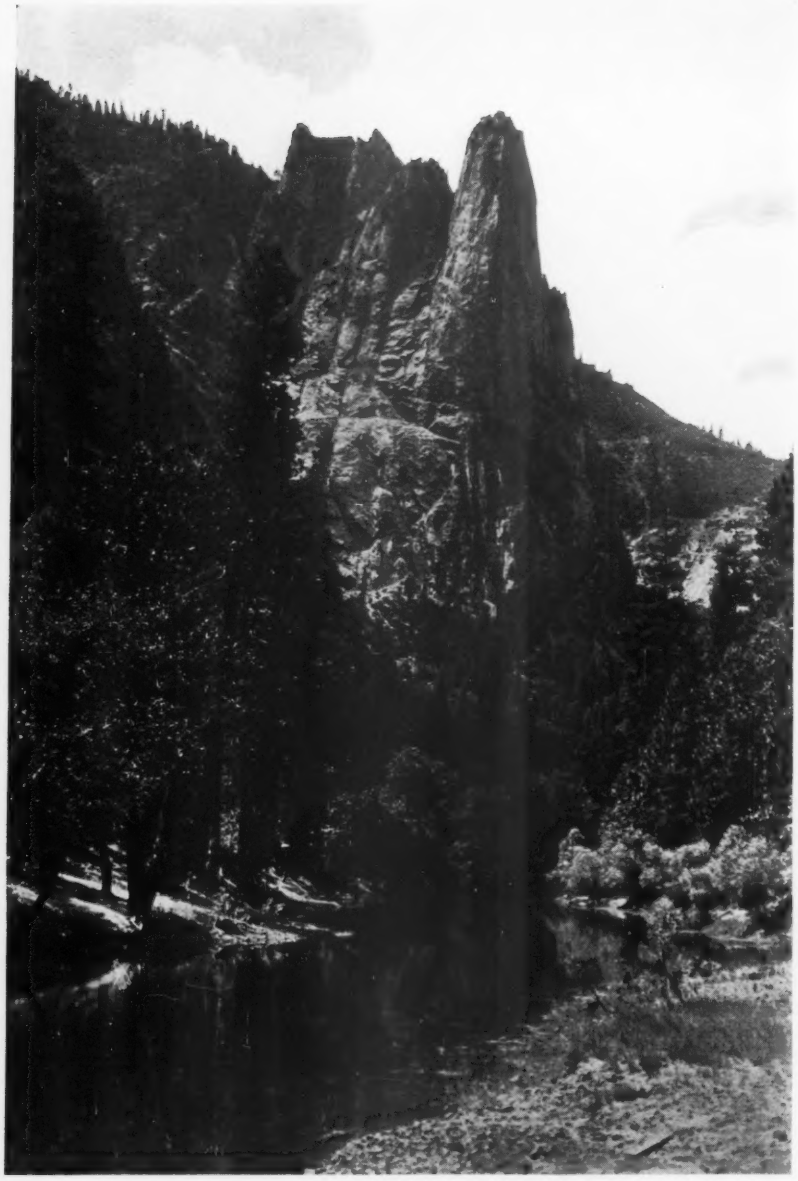
**The etiquette of field and forest has to do with large and vital issues and the code motivating these children of nature is one of ancient and practical wisdom. Often life itself depends for them upon conforming to its laws, and woe to him who endangers himself and his fellows by disobedience!**

# THE COVEY COMES HOME

By GEORGE A. SIMMONS



**In the high Trinity wilderness, where I made my experiment in planting a covey of Bob-white, the quail of the lowlands.**

WHO their parents were I never knew. The covey came to me from the cactus and mesquite country along the Rio Grande, still confined in twenty-four firm shelled eggs. A red bantam hen did the rest and brought twenty fuzzy little quail, no bigger than so many bumble bees, to the screened pen below my cabin kitchen window.

I had often dreamed of freeing a covey of bob-whites in the Trinity wilderness and deep in my own mind I was convinced that they would thrive and multiply. Food was plentiful. Wild oats and peas grew in profusion on the upper slopes, manzanitas flaunted their red berries on the rocky shelves and flats, and I dreamed of the day when my plantings of bittersweet would yield their fruits of flaming red to glow over the snows of winter. Dense thickets of fir and pine grew on the flats that formed the shoulders of the hills, and down along the stream bottom thick stands of aspens and sweet briar offered cover and protection from winter storms.

Top-knotted mountain quail were there in abundance with their queer "*ka-kak-kaw*" ringing from the canyons and valleys when the afternoon sun glowed on the open slopes, but I was born in the lowlands and I yearned to hear the call of a bob-white quail when the evening shadows crept down the slopes of the Trinities.

I felt that my dreams had every chance of coming true. Bird gunners were few and far between in that rugged section; the mountain quail and the big blue grouse were more than holding their own. Yet, there were natural enemies to consider, but I felt that my covey would pull through the dangers of rock scarp and thicket.

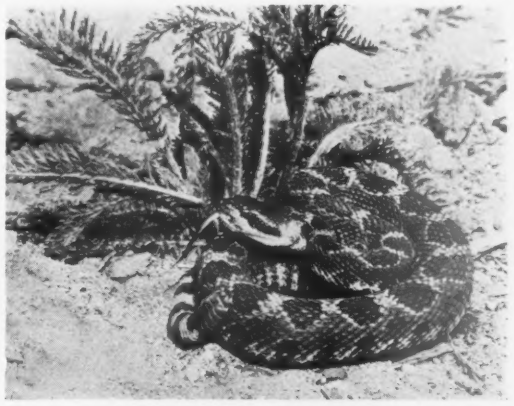
Mothered by the little red bantam hen, my covey grew from balls of downy fuzz into bright red-eyed little fellows that darted around like streaks of light in the run pen. I watched them carefully, kept their feed pans clean and fed them regularly. The little red hen, clucking importantly, sheltered them under her warm wings at night and on cold, damp days.

They had their first adventure one clear, chill night. when a full moon rode the crests of the distant ranges. I was perched on the steps of the back porch, listening to a coyote chorus. A broad band of moonlight lay like a wide ribbon of silver across the garden and presently I became aware of a silent, darting form in the lettuce bed. A moment later it appeared in the opening between the bean rows and I saw that it was the snakey, little form of a weasel. He approached with agile, serpentine grace and I

remained very still lest I spoil a picture of the wilderness.

For an instant the little killer disappeared in the deeper shadows of the bean vines and I thought that he had retraced his way to the thicket. Presenty, however, he appeared again in the wide path that was awash with the moonlight.

A vagrant breeze so tiny that it barely stirred the leaves on the blackberry vines wafted from down the valley and the little shadow of doom in the moonlight stopped and sniffed hungrily. The snakey head turned quickly from side to side as he endeavored to locate the source of the warm scent that had been borne to his sensitive nostrils by the night wind. Just for an instant he sat up on his haunches before making his way swiftly, surely to the run pen of the covey. But my little birds were safe behind fine mesh wire.



**An ugly rattler basking in the warm sunlight —just one of the tribe of deadly natural enemies my little covey had to brave.**

The little red hen clucked sleepily until the realization of the closeness of a terrible enemy confronted her. Then she shot forward, her feathers ruffled, a battle cry in her throat. Twenty tiny mites of quail life, rudely awakened from slumber ran like dark bullets about the pen.

Cheated by the barrier of fine mesh wire, the weasel circled the run pen, ran lightly up the side and across the wire protected top. The red bantam hen shot upward in a vain endeavor to pluck the little killer between the mesh. The weasel sat bolt upright on one of the boards that formed the frame of the pen and I saw his white, needle-like fangs in the moonlight as he snarled his disappointment.

I whistled very softly and instantly the forest killer became a tiny statue on the frame board. Trinity, the dog, napping on the front porch, heard the low whistle and came quietly to the corner of the cabin. The tiny night wind bore the pungent scent of the weasel to his black nostrils and I saw him crouch and creep slowly into the path of the moonlight. Then he shot forward, a shadowy arc of doom. A sharp, quick rustle in the darkness behind the run pen and Trinity appeared again in the moonlight path. He came to me and placed his grizzled muzzle upon my knee and I wiped away a drop of red blood from a wound in his lip. The little red hen settled down again, the tiny quail sought the protection of her hovering wings and her sleepy clucking became fainter and fainter.

Within a few days I found it necessary to move the covey into larger quarters and constructed a run of small mesh poultry fencing. There was not sufficient material to cover the top, however, and having no desire to journey into the distant town for more, I placed the babies and the bantam hen in their new home praying that no weasel would ever find them.

The covey's next adventure and lesson in the ways of the wilds happened one hot day when a molten sun hung in a clear blue sky. I was hugging the shade by the side of the cabin watching a doe and her fawn grazing on the lush grass of an open park. A red squirrel was playing about an old fir snag near the edge of my garden when a dark shadow, swift and sinister, flitted across the open patch of sunlight. The squirrel chattered shrilly and shot into a convenient hole like a streak of darting red flame. I looked upward for the cause of the shadow.

**By the end of the first winter, my twenty Bob-white, apparently completely acclimated to their new altitude and environment, disappeared in the far-flung mountains. No reports of them for more than a year led to the belief that they had perished or had in some way won their way back to the east and south. But the first light snow of the third winter brought the low, musical call—"Bob-bob-white." My covey had come home!**

High in the blue dome of the sky a red-tailed hawk circled on motionless wings and I watched as he spiraled slowly downward. For an instant he seemed to hang absolutely immobile. Then he shot downward, his pinions flashing in the sunlight. Like a bullet he plummeted earthward and I thought I could hear the hiss as his plunging body parted the air before it. At the same time I heard the little red hen give vent to a shrill call of

alarm, saw her enter the little coop and magically the covey disappeared before my eyes. The coarse grass in the pen waved a bit and became still and dead.

The big hawk shot on downward, broke his mad plunge with flailing wings and hovered greedily over the run pen. I reached for my rifle and the grim bird of prey, glimpsing the movement, swung out over the canyon, uttering a harsh cry of rage. Swinging the rifle to cover his retreating form, I fired. He swung into a swift, steep bank then plunged on a steep glide to disappear in the shadows far down the canyon. One fluffy feather drifted aimlessly in the vagrant air currents until it, too, spun slowly downward toward the canyon floor.

All too soon the day came when I knew it was time to free them. I raised the wire a few inches and one by one they found the opening and trooped forward across the garden. Courageously they made their way to the rim of the canyon and downward into a new world. For down there in that jumble of rugged boulders and shadowy thickets my covey was destined to pit their wits with those predators of fang and feather and claw. On sunny days when the heat waves danced in the canyon, huge mountain rattlers, squat mottled things, haunted the rock scarps. The weasel and the mink traveled the floor of the canyon, cruel swift killers with an insatiable appetite for blood. The bob-cat haunted the thicket edges, moving as silently as thistle-down before the wind.

I wondered how many of that twenty brave quail would live to see another spring and for the first time I felt a pang of conscience. Was it fair to release my covey into that strange, savage wilderness of the high Trinities?

I next saw the covey far down in the canyon. I had been whipping a fly into the pools of the Kekawaka, and with a well filled creel was returning home. Cutting across the shoulder of a steep slope, my path led through a growth of manzanita. I heard a *whir-r-r* and my covey rocketed from cover. I counted them as they shot like bullets into the depths of the canyon. Eighteen remained, plump and hardened by their contact with the grim wilds of the mountains.

Summer passed and fall came ushering in the deer season. Rifles cracked on the hardwood ridges and in the canyons and at sundown, when the wilderness was still again, I could often hear the melodious whistle of a quail calling the scattered flock together. It was a new music in the songs of the wilderness.

Winter came and passed, and spring came to the Trinities —a spring that brought half-hearted drizzles of clammy rain instead of the usual downpours of that season.

By mid-June the grasses lay sere and yellow under a merciless sun, berries dried on their parched stalks and the weeds dwindled and died before they had a chance to mature their seeds. A smoke pall hung like a blanket in the canyon of the Kekawaka and billowing columns of it marched behind the distant ranges. Driven by the threat and the menace of the smoke palls, my covey left the canyon and one still, hot evening in August I flushed them from a sun dried flat near the crest of the higher ridges.

By September the grass was burned to a dull, flat brown, the leaves hung curled and lifeless on the brush, the lesser springs had long since ceased to flow, leaving beds of rock and gravel to glisten in the sun. Food would be scarce that winter. The first snow came and I listened in vain for the call of a lowland quail and it dawned upon me that they were gone. A neighbor, Al Klem, brought me the first news of my lost covey. He flushed them from the sagebrush in the Salt Creek bottoms one chill winter morning while tending his traps. He had counted them, he said, and I was glad to hear that they were holding their own.

The birds were next sighted on the far flung slopes of Grizzly Mountain by a ranger. Then in February they were flushed far down the mountains in the valley of the Eel. They were carrying on and I wondered if they were battling a weary way into the flat country that was theirs by right of heritage. Once I heard of them from a trapper in the river bottoms, and then they disappeared.

Spring came and summer passed with no reports regarding them. I finally came to the conclusion that they had won their way into the great valleys of the east and south.

Again fall came and passed into an early winter with a flurry of snow that hissed through the firs and the pines as it fell. I had cut wood all day and was tired as I approached my cabin at sundown. The snow had ceased to fall and I stopped for an instant to gaze out over the valley. Was that a call I heard? Could it be? Was I dreaming? No, it was true! From far down in the canyon where the ragged crests of the firs threw their purple shadows across the snow, mellowed by distance and infinitely sweet came the musical *bob bob-white* of a lowland quail. My covey had come home!

# America's Trees of Tradition Immortalized

The strain of America's trees of tradition will be kept alive.

Under the shadow of the white dome of the capitol at Washington direct descendants of trees beloved by Washington, Lafayette, Jefferson, Lincoln and other famous sons will carry on the glory of their ancestors and perpetuate the memory of their fame.

The National Historical Grove, established by The American Forestry Association along the banks of the Potomac River in Anacostia Park, was dedicated with colorful ceremonies through the Association's National Nut Tree Planting Project on October 15 by Dan Beard, the most famous of all living scouts, and a band of five hundred picked Boy Scouts. The park site was made available by the Office of Public Buildings and Public Parks at the direction of Colonel U. S. Grant 3rd.

Appropriately, the historic soil of Virginia nourished the first scion to be planted, a walnut tree from Mount Vernon, a vigorous young descendant of one of the famous old trees George Washington loved and cherished. The second tree planted, also from Virginia, immortalizes America's heroic dead at the Arlington National Cemetery, a scion of one of the great trees George Washington Parke Custis and the great Confederate leader, Robert E. Lee, both former masters of the now sacred ground, knew and loved. Other trees planted were from the battlefields of Gettysburg, Fort Frederick and Winchester.

For the past several years the young blue-bloods of treedom have been preparing to take their rightful place in this picturesque grove. Boy Scouts in conjunction with The American Forestry Association have gathered seed from Mount Vernon and other American shrines and the young trees were given their start in life by the United States Department of Agriculture.

# Conservation Sidelights on Reorganization

By OVID BUTLER

WHEN Congress reconvenes in Washington early in December, there will be laid before it a document whose contents will be front page news in every important newspaper of the country. That document will be President Hoover's recommendations for the reorganization of the executive branches of the Federal Government. His proposals will be more than recommendations; they will become law at the expiration of sixty days if Congress has not definitely and formally put its stamp of disapproval upon them.

It has long been anticipated that President Hoover sooner or later would move to reorganize the executive machinery of the Government. Reorganization has run hotly in his blood for years. As Secretary of Commerce he had much to say on the subject and engineered certain reorganizations within the scope of his official influence. The platform upon which he ascended to the presidency declared vigorously for governmental reorganization. And as President he has repeatedly impressed upon Congress the need of "placing every single department, bureau and board in the entire Government upon the operating table" for clean cut separation, analysis, and regrouping.

Last month the President, armed with authority extracted from the last Congress, served notice that he is girded for action. In a statement to the press, dated September 14, he announced, "I have today directed that the Director of the Budget shall set up the staff to make the necessary detailed investigations and prepare executive orders for reorganization of the whole structure of the Federal Government. These orders covering the entire executive establishments will be completed and presented to the Congress immediately on its convening in December."

Thus the stage is set for what may prove to be the most critical operation upon our federal governmental body in its entire history. The outcome is of tremendous importance to the people of the United States. Suspense, uncertainty, fear, prevails throughout the federal household, and extends far into many channels of public interest as to how the knife may cut and with what scientific skill the parts are adjusted. Every federal activity has an interest at stake,—the interest of being placed so that it may render its highest public service with greatest economy and efficiency.

Reorganization of a government as large and complex as that of the United States is at best a highly delicate and difficult operation. It calls for knowledge of history, science, commerce, humanity and political economy that few men combine. The fact that after twenty years of prolonged agitation a reorganization of the whole structure of the Federal Government is to be undertaken within the space of a few months under high political tension and a passionate public demand for economy at any cost, with the plan open to study and consideration for only sixty days, may well strike concern in the minds of the American people. Grievous and costly mistakes may be made, and once made years will be required to remedy them.

In no field of public endeavor is this danger greater than in the group of federal units charged with the management and development of natural resources, title to which rests in the Government as trustee for all of the people. These activities represent the people's insurance upon their sources of natural wealth, and reorganization, badly done, will depreciate the security of those policies and will write a mortgage upon the country's future. This group has been definitely marked for the reorganization knife, but no intimation has come from the consulting room either as to where they will be placed or who are the skilled technicians that are passing judgment upon their case. The President has said that he has instructed the Bureau of the Budget to set up the staff to study the whole governmental body and to prepare the orders for cutting and disposal of parts. With the short time available and with the tremendous physical burden under which the Bureau of the Budget is now struggling its study of "the whole structure of the Federal Government" can at best be nothing more than a gesture.

To those citizens outside the Government service interested in the welfare of American conservation the situation holds a challenging significance. The belief prevails that the President's own ideas in respect to reorganization have already been formulated and hardened into a plan which he is clearing through the Bureau of the Budget to give it prominence, popularity and impetus as an economy measure. That procedure, it is pointed out, is good strategy to assure acceptance of the plan, whatever it may be, because the economy label is what the American people are demanding on their governmental cloth and in times like these the public is not discerning as to whether the cloth is all wool or a yard wide. But for the thoughtful citizen interested in sound government and a reorganization plan that will stand the test of time, an economy label is not enough, and it is not the fundamental thing. They want to know the guarantee and to be assured of the scientific and political wisdom that goes with it.

So far as such citizens and group of citizens in the conservation field are concerned they have not been taken into the Administration's confidence in the formulation of a reorganization plan for conservation work. Quite the contrary. Their views have not been invited, no representative of the Administration has shown any inclination to wish to discuss the problems with them. Interested in government, they have, figuratively speaking, been held at arms length and made to feel that their views are not desired. It is natural, therefore, that to many of them reorganization has come to mean a carefully guarded plan largely of the President's own making to be divulged when circumstances offer a propitious opportunity to effect its adoption. The reason for the President's singular course of secrecy and individualism is perhaps explained by his own words selected from his public utterances on the subject of reorganization.

"Every President from Roosevelt to Coolidge has urged upon Congress a reorganization of the executive arm of the government, commissions have been appointed. Congressional committees have investigated, reports have been made, confirming all this. Cabinet officers express their feelings in spirited annual reports with a circulation of a few hundred copies. More than once a complete program of reorganization has been formulated, and put forward as a basis for general consideration.

"But practically every single item in such a program has invariably met with opposition of some vested official, or it has disturbed some vested habit, and offended some organized minority. It has aroused the paid propagandists. All these vested officials, vested habits, organized propa-

ganda groups, are in favor of every item of reorganization except that which affects the bureau or the activity in which they are specially interested. No proposed change is so unimportant that it is not bitterly opposed by some one. In the aggregate, these directors of vested habits surround Congress with a confusing fog of opposition. Meantime, the inchoate voice of the public gets nowhere but to swear at "bureaucracy." * * * *

"No one deserves higher admiration than the permanent officials of the Government, but long years of experience in reorganization of private concerns and some years of experience in the Government have led me to believe that if the overlap and waste in the Federal Government is to be eliminated it must be handed down from on high and not attempted as the result of agreements, for they can never be brought about."

Right though the President may be in his theory of effecting reorganization, his policy of not taking the conservation public into his confidence to the extent at least of showing an interest in its views explains why many feel a lack of confidence in what he proposes to do with the conservation parts and to question his sympathy for and his fundamental understanding of conservation needs. In his many speeches and messages on reorganization, he has stressed the principle of regrouping activities according to major purposes. On one occasion he declared that what is needed is "to group together all agencies having the same predominant major purpose under the same administrative supervision." Referring specifically to conservation on another occasion, he declared:

"The conservation of national resources is spread among eight agencies in five departments. They suffer from conflict and overlap. There is no proper development and adherence to broad national policies and no central point where the searchlight of public opinion may concentrate itself. These functions should be grouped under the direction of some such official as an assistant secretary of conservation. The particular department or cabinet officer under which such a group should be placed is of secondary importance to the need of concentration."

On still another occasion, he asserted:

"No policy of real guardianship of our reserve resources will exist until we put all conservation business in the hands of an Under Secretary for Conservation, with the spotlight of public opinion continuously upon him."

And in the President's last message to Congress on the subject he specifically recommended an assistant secretary for conservation, but he gave no indication of the department under which he would group conservation activities. The soundness of the President's theory that all conservation activity of the Government should be grouped under one administrative head is by no means fully supported by students of the subject, but it is his expressed belief that the department in which they are concentrated is of "*secondary importance to the need of concentration*" that is giving rise to deep concern among conservation groups who hold that this is the most vital spot with which the operation has to deal. A blunder at this point, they maintain for reasons that will be set forth in next month's issue, will throttle the life blood of the Government's conservation system.

(*To be Concluded in the Next Issue*)

# A Unique Desert

By LEONARD B. RADTKE

IN CERTAIN areas of the Mescalero Indian Reservation, in New Mexico, practically every large western yellow pine is catfaced. Upon close examination, these catfaces are found to be of about equal size, regular in shape and oblong.

This is the work of the Apaches. It was their custom to peel off the outer bark of this species and use the cambium for food. It was sweet and palatable, according to some of the old Indians who remember eating it in their boyhood. The practice stopped about fifty years ago, due, no doubt to the fact that if the Indians wanted something sweet, they could go to a store and buy it. It is said that the Indians of the North, who tapped the maples for sugar, abandoned

**A peeled tree on the Mescalero, where the Indians found their sweets before the day of the now familiar chocolate bar.**

them when the white trader appeared with his sweets. Apparently the same thing happened to the Indians of the Southwest.

There are thousands of these peeled trees on the Mescalero, yet not a single tree has been found entirely girdled. It was customary to take one oblong piece of bark from each tree. While this undoubtedly retarded the tree's development, very few died as a result of it.

According to the old Apaches, it was customary to take a certain amount of bark from each tree, and never to girdle them. They do not know whether this was done to preserve the trees. None of them knew at that time that their tribe would some day sell this timber.

But who knows? Perhaps among the Apaches of a century ago, there was a Hough or a Roosevelt, to warn them about conserving something for the future.

Hurtling through the overcast sky — honkers! — and coming right over!

# BETWEEN DAYLIGHT AND DAWN

By RAY GWYNN HOGAN

LOOK in your dictionary and you will find that the difference between daylight and dawn is that hour preceding the first appearance of light and just prior to actual sunrise. Ask any duck-hounding nimrod and he'll tell you that it's the best shooting hour of the day! Just before sunrise and shortly after—the time when the ducks fly thickest, the fish bite faster, the deer roam more freely and the birds flush the easiest in the field. In that you have the solution of the conundrum that has long puzzled the fairer sex—why a man insists on getting up at three o'clock on a frigid winter's morn to go gunning.

But to me that is ideal hunting. The light is still soft and mellow, the air is crisp and refreshing, adding a great deal more zest to the occasion, and the trip as a whole seems to be a greater success than it would ordinarily be. How some men can get up at eight-thirty, partake of a leisurely breakfast and get to their blinds by ten o'clock and still enjoy duck shooting is beyond me. I've heard of this being done, but I have yet to meet the man who does it and still gets a satisfactory bag. The getting up at three is part of the hunt to me and, while I must always weather gales of protests from certain members of the family who dislike being disturbed at such an early hour, I manage to crisp a quarter-pound of bacon and mix it up with a couple of eggs, then wash it down with steaming black coffee. After that I am ready to start.

Such was the conjuncture on a frigid morning in December. Russ was due at three thirty and at three forty-five he rattled to a stop at the front gate.

"You're late," I advised, climbing in beside him and holding my shotgun between my knees.

"I know it," he grinned, throwing the sedan into gear and rolling off down the road. "I couldn't find anything to eat so I had to go and get Charlie to rustle me some ham and eggs."

If it wasn't for Charlie, many duck hunters would start the day off hungry. Charlie wasn't so dumb, either; he always opened up an hour earlier during duck season.

"Did you bring any two's?" Russ asked. "There's been a big flock of geese hanging around the lake for the last two weeks, according to Joe."

I had. Plenty of them with more to spare, just in case ——. We were headed this particular morning for Joe's pond, a small expanse of water that lay between the road and the river. It so happened that the river formed an immense "U" covering four or five miles, and Joe's pond lay in the center of this horseshoe. Naturally it was the center of the cross flight and we had yet to visit the water and return with empty coat

I crouched low in the pit and my throat tightened. It was now or never,—and a good shot brought down a single.

pockets. We had a lot of confidence in this lake—too much, so it seemed. There's a lot to that old proverb about not "counting your chickens before they're hatched," and it applies especially to disciples of Nimrod and Izaak Walton.

We reached the lake just as the first rays of sun began to penetrate the banks of gray clouds. Dismounting stiffly, we rubbed our legs vigorously to stimulate a bit of heat and then began the short walk to the lake's edge where our natural blind of tules awaited us.

"Can't see anything," Russ muttered, peering out across the water through the faint light.

"Can't shoot for twenty minutes yet, anyway," I offered, stumbling along through the damp grass.

"Funny we can't see any ducks though."

It was rather disturbing, this coming to the lake and finding it apparently devoid of birds.

We located the blind and got ready. Ten, twenty, thirty minutes elapsed. The morning light grew stronger despite a cloudy sky, but still we had not pulled a trigger. It was past the opening minute and guns were booming along the river—but still no ducks. A mud hen skidded into the water out near the center; a killdeer began a noisy song on the opposite side of the pond.

"Something's wrong!" declared Russ, getting to his feet.

I was forced to admit that something was amiss. But what? Ducks do not abruptly change the course of their flight for no reason, and then there's always a stray that will come whizzing in.

"Ain't no ducks raoun' hyar," a voice called wholly unexpectedly from our right. "Ain't been none fer nigh onto a week."

"Why? There used to be plenty," I said, endeavoring to ascertain the identity of the speaker in overalls and sheepskin coat.

"They finished th' new bridge an' all th' water in th' river's on t'other side naow. Have to git on t'other side if you gets any ducks a'tall."

So that was it! We had entirely forgotten the new bridge that was to span the river and divert its course from the east to the west side.

"Can we get to the water by walking across this way?" Russ wanted to know. Should we be forced to return to the bridge and cross, there would be no use in going, as the day would then be well on its way.

"It's a purty good tramp through th' woods an' it'll take you nigh onto an hour to reach the water, but you can make it."

I looked at Russ and we both glanced at the rising sun, faintly outlined in the dark clouds. We had come to hunt ducks, the day was growing older, so there was nothing left for us to do but accept the dish that the goddess of luck had placed before us. We thanked our informer and, after getting our bearings, mainly through the efforts of his long finger, we began the march through ankle deep slush and thin ice to the river.

"Ought to be some ducks in here," Russ said as we sloshed along.

It was ideal country for mallards. Short, stubby, wet grass scarcely six inches high and plenty of feed. The greatest trouble would be getting within gun range, as the whole distance was practically a level field with very little cover for stalking.

We had covered possibly half the distance from the lake to the river when a dozen black specks, hurtling through the overcast sky, swung into vision.

"By gosh, here come some ducks!" I exclaimed, grasping Russ' arm and pulling him to a crouching position.

"Coming over, too," Russ murmured. "I'd give five dollars for a good blind right now."

But our drab clothing blended well with the dried stubble and the sixteen ducks swung over, offering high but beautiful shots.

"Take 'em!" I exclaimed, rising to my feet.

Bang! Bang! Wham! Our doubles barked in close succession. The lead duck folded and plummeted for earth, to be followed by two of his flock and a myriad of floating feathers. The balance of the flight swung quickly higher, veered sharply in their course and headed for the river.

"Well, that's some encouragement," grinned Russ as we gathered in the two spoonbill drakes and one hen. "I had begun to think that we were in for a duckless day!"

We continued our march and just before we came in sight of the dried river bed nine mallards swished out of the sky and settled in the stubble a quarter of a mile ahead. Again it was the proposition of no blind or cover behind which we might make our advance. Russ finally hit upon the idea of stuffing dried grass in all of his pockets and covering his cap. He then attempted a slow-motion, crouching crawl, but the old greenhead that stood on the lookout discovered him before he had put a hundred yards behind him. The flock was up and gone.

Crossing the river was comparatively easy and we executed the quarter mile across the sand in short time. We selected a long point as our final destination, scooped out a pit in the loose sand and settled ourselves for whatever came over—which wasn't long in coming.

A great flock of bluebills, clamoring noisily down river, crossed over the point. Russ dropped one almost on his own head and my two shots netted a fat drake. Then, like the idiots that bluebills are, they went up river for a quarter mile, turned about and crossed over again, this time lower, and we each scored with both barrels. A few moments later a single, somewhat confused by the bombardment, swished by and Russ brought him to solid earth with a charge of sixes.

A rest of thirty minutes duration followed, broken finally by Russ declaring that he was going to go down river for a ways in the hope that he could get up a few flocks.

"Getting too late for the morning flight and if we don't get action pretty sudden now we'll have to call it a day. If you see something that I don't, yell."

So down river Russ went while I made myself comfortable in the shallow pit. Possibly it would have been a good idea for me to have gone with him but the blind was inviting, offering some resistance and protection from the sharp wind that was sweeping down the channel—and then, I never was exceedingly fond of walking. (*Continuing on page* 622)

## SOME TREES

There is a sense of grandeur in a tree
That is sublime, and in the soul of me
Awakens awe and reverence for the One
Whose master hand moves star and moon and sun.
Full often rests a farmhouse in embrace
Of friendly elm or maple; note the lace
On drooping willow ropes of tender green
Reflected in a still lake's cobalt sheen.
And when the gentle, crooning murmurs stir
Among the blue and fragrant bands of fir,
That stand apart in whispering groups, we hear
Strange, melancholy music stealing near.
Observe an oak reach eager arms on high
In ecstasy of worship to the sky,
Although majestic feet lie deep in sod,
Above, its soul communes alone with God.

--Anne M. Robbins

# MULE DEER OF MONTANA

## By Day and by Night They Delight the Nature Lover

By WINTON WEYDEMEYER

Photographs by the Author

BEYOND the impalpable wall of darkness fronting me is spread a broad meadow. I cannot see it now, so black is the moonless Montana night, but close acquaintance for more than twenty years permits me to visualize its every rise and hollow. Neither can I see upon its surface any form nor movement; yet I know that many hungry mule deer, spared the knowledge of my presence by the steady wind that blows from them toward me, rove about the broad expanse. For I can hear the muffled tread of their padded hoofs upon the rain-softened sod. I can hear the faint crunch of grass being grazed, and now and then the sudden thud of two or three quick jumps, as an agile deer escapes the striking foot of another, whose grazing ground he invades. There is no clatter of horns, nor throaty battle-challenge, for it is now early spring, and the mule deer bucks are antlerless and peaceable.

Though preferring to feed in the hours bordering twilight and dawn, when hungry these mule deer—or black-tail, as they are generally known—are unhampered by the darkest night. The ones I now hear are feeding upon the tiny, tender green leaves of alsike and red clover, just commencing the season's growth. All winter they have remained in the woods of this northwestern Montana mountain valley, where cattle and sheep during the dry summer and fall consumed nearly every spear of grass and leaf of small vegetation. Since November the deer have been forced to subsist on whatever forage they have been able to obtain from the fenced farms of the lowlands. With the coming of spring they hunger for new, green growth, which is yet furnished only by fields of alfalfa and clover. And so scant is the pasture afforded by these legumes at the present time that grazing begun at twilight by the deer must be continued far into the night, in order that the demands of their lean bodies may be satisfied.

By its very contrast this night conjures up the memory of another, when for hour after hour I watched twenty to thirty black-tail feed and fight, mate and rest and play, all at ease and completely unconscious of my presence. That was a night during a mild December. The moon, nearly at its

**This photograph of mule deer raiding a farmer's stacks was taken from a blind. The faint click of the camera shutter, opened just before the flash was fired, brought the deer to motionless attention. The one on top the stack evidently believed the feed hardest to obtain is the best!**

brightest, spread a soothing sheen over the snow-covered, undulating field of alfalfa where we had left a third crop standing knee-high over three acres of hillside, that the deer might find provided a supply of winter forage. Slow pasturing the alfalfa was now, however, as for more than five weeks it had nourished both white-tail and mule deer every night, and the succulent leaves and stems remaining were buried beneath five inches of snow, packed hard from much trampling and pawing.

Commencing at dusk, from adjoining woods the deer came in. Until midnight they fed almost continuously, pawing the snow with quick, sidewise strokes of a lithe foreleg. The larger bucks now and then would carry on brief flirtations with the does. Two yearling bucks, lusty with the vigor of life, engaged several times in friendly battle, matching agility and strength. After feeding for about three hours, one by one thirteen of the deer lay down to ruminate. This intermission in most cases lasted about thirty minutes, and was followed by another period of grazing. One two-year-old buck chose a resting place thirty feet from where I was hiding. Twice he stretched flat upon the ground for a few minutes, but during the rest of the time he watched his feeding and playing companions with great interest, continually chewing his cud vigorously.

**A watcher in the woods: a photograph study in "protective coloration"—exemplifying how well the markings of a mule deer doe may blend with the lights and shadows of the forest.**

About midnight a full-grown buck, one of the largest, took the center of interest. Hearing a loud clatter of horns from a distant corner of the field, I turned, expecting to view another playful skirmish. But this was a battle much more serious than the several recreational struggles I had witnessed earlier during the night. Two large bucks, their broad, hard foreheads together, heaved and strained in a flashy, whirlwind fight. Most of the time the lighter buck was forced backward at great speed. Maintaining the position necessary for resistance by violently throwing his body in line whenever a sudden heave by his heavier antagonist flexed his neck, stubbornly he resisted the other's advance —sometimes, with a sudden spurt, outpushing him for a few yards. Back and forth, round and round, over a small area they fought. Finally the weaker buck was pushed over a five-foot bank, and utilized the separation to admit defeat by retreating a few yards.

The victorious buck did not pursue his foe, but turned back to the field where the other deer, with calm unconcern, had continued their feeding during the noisy struggle. For nearly an hour he looked for trouble, visiting all parts of the field, and driving near bucks away from every doe. Without exception the does paid no attention whatever to his mastery, and he did not attempt to approach them closely. None of the other bucks would fight him; each one turned tail at his approach and retreated a few yards, and thus were unmolested by the belligerent buck, who, true to his race, displayed fine sportsmanship. When passing from one part of the field to another he traveled at a very rapid, swinging trot, with his head held almost on a level with his body — a gait I have never seen used by mule deer under any other circumstance. As he ran, he frequently uttered an avid mating cry. When approaching another large buck he would come to a halt several yards away and voice a challenge to battle —a three-noted, deep cough —followed by a drawn-out, sizzling call: "Ka-cow-oo, feeeeeeeee." Finally, unable to start a fight with another buck, or to arouse a doe to response, he calmed down and resumed feeding. Stealing away from my watching place, I left them busy and peaceable.

"Battles to the death," and tragic starvation to the combatants because of locked horns, although both sometimes occur, are quite rare among mule deer. Fighting between adult bucks during the rutting season is vigorous, but rarely savage. I have watched dozens of battles, but have never seen a buck attempt to inflict bodily injury upon his opponent, or to pursue him after he has acknowledged defeat. Their regular, pronged horns do not become interlocked so easily as do those of white-tailed deer; and in fighting, foreheads, not horns, are used for the application of power. The large antlers help to hold the bucks' heads in position, but are not ordinarily employed as weapons. Once in midwinter I witnessed a battle between two large bucks, one of which had shed his horns. The fight lasted for several rounds, and the antlerless buck appeared to be at no disadvantage whatever. Though during vigorous fights the antlers are sometimes subjected to tremendous pressure, only rarely do they become inextricably entangled.

Although the deer now grazing in the meadow nearby would see me instantly should I step into the seemingly impenetrable darkness beyond my hiding-place, even in the brightest light of day they cannot readily identify a motionless man at a little distance. But to compensate for this deficiency in eyesight, the mule deer possesses remarkable powers of scent. In attempting to secure daylight photographs of these deer with a hand camera equipped only with the standard short focus lens, I have frequently stalked them in their natural haunts. I have found that they can usually

discern my approach when my position is as much as ninety degrees from the direction of the wind. That is, with a light north or south wind blowing, deer directly east or west of me will detect my scent. Even with a brisk wind blowing from the deer directly toward an observer, at a distance of thirty or forty feet the intruder is almost certain to be discovered. Several times in the woods, when facing the wind, I have stalked to within twenty or twenty-five feet of unsuspecting white-tails, only to be smelled by mule deer forty to eighty feet directly beyond.

To the amateur photographer who is not equipped with long focus lenses, this keen sense of smell possessed by mule deer presents a constant difficulty. Satisfying results are obtained with my hand camera only when the deer are within twenty to fifty feet of the lens. And even in this locality, where mule deer are common and well accustomed to man, endless patience, abundance of time, and considerable knowledge of deer habits are necessary to a close approach by stalking. Photographing them by flashlight, although rich with the thrill of uncertainty, offers a somewhat surer means of securing "close-ups" with inexpensive equipment. The flashlight photograph illustrating this article, as well as the photographs taken by daylight, all of wild deer, were taken with cameras equipped only with slow, short focus lenses.

Like most other animals, the mule deer readily adapts itself to changing conditions of environment. This is evidenced by a great variation in habits in different regions within its range. Generally these adaptations serve better to preserve the species; but here in this far corner of Montana the deer have recently made a change in migration and feeding habits that has proved disastrous to them.

From the time recalled by the earliest trappers and prospectors until the fall of 1927, the mule deer of this region remained in the mountains and foothills during the fall and winter, descended to the valleys in March or April, and returned to the hills during early summer. Normally only a moderate number were taken during the fall hunting season or killed unlawfully during the winter, the main supply of game being furnished by the white-tails of the valleys.

When in the spring of 1927 the mule deer migrated to the valleys at their usual time, they were voracious with hunger after an exceptionally unfavorable winter in the mountains. As the greening fields of legumes and grasses furnished the only good grazing, the deer adopted the farms as their feeding grounds, and for two months fed but little elsewhere. During the summer they returned to their usual range in the mountains; but as winter approached, with its yearly threat of deep snow, raids by coyotes, and insufficient food supply, they began an unprecedented migration. Inclined, perhaps, by the memory of the bountiful and safe grazing obtained on the farms during the spring, all the mule deer summering in the vast Whitefish Range country moved down to the narrow valleys, and throughout the fall and winter secured their food from the farms and in the lumber woods.

Since that season the mule deer have spent every winter in the valleys, making their downward migration during October or November, instead of during March. Although in this locality they are normally browsing rather than grazing animals, standing alfalfa has become their favorite feed, with clover their second choice. Most grain and grass crops, and garden vegetables are eaten readily. For three months during the winter of 1930-31 about thirty mule deer secured practically all their sustenance from the small ranch which I help to operate. The crop of alfalfa covering three acres, which we left for them, was eaten completely to the crowns of the plants. At least a ton of oat straw and barley hay was eaten from the stack. In our garden we left for them several hundred pounds of rutabagas and turnips, and a ton or more of cabbage leaves, as well as pea vines, standing corn, and carrot and mangel tops. By the end of December the only remaining signs of a garden were the heavier portions (*Continuing on page* 606)

**Abroad in the gloom of twilight. Although mule deer feed and travel at all times of the day and night, their preference is for the evening hours. When hunger drives them, however, they are unhampered in their feeding by the darkest night.**

# THE YAZOO FLOOD AND ITS CAUSES

By H. G. MEGINNIS

THE inhabitants of the upper Yazoo Delta, Mississippi, long inured to the hardships imposed by frequent inundations, last winter experienced the most destructive flood in the history of northern Mississippi. Rains almost twice as heavy as normal began to fall in December, and continued until late in February. It is natural that the people of the Delta have come to expect floods as the inevitable consequence of heavy rains. That has been their experience of recent years. The fact that overflows from which they suffer periodically have other causes than excessive rainfall is little appreciated.

**The people of the Yazoo Delta have come to expect inundating and destructive floods as the visitations of heavy rains, little appreciating that the causes lie elsewhere. This is a scene in one of the less severely flooded areas last winter.**

Studies recently carried out near Holly Springs, Mississippi, by the Southern Forest Experiment Station of the United States Forest Service indicate that floods are due not so much to quantity of rainfall as to the type of land on which the rain falls. The latter largely determines what proportion of the rain will be absorbed by the soil and what part will quickly run off the surface and swell the streams. It is surface run-off that composes the bulk of flood waters, since nearly all the water absorbed by the soil is evaporated directly from the soil or used by vegetation or finds its way into streams as seepage too long delayed to produce high-water stages of flood proportions.

These recent studies on the uplands of the Tallahatchie watershed have special significance because they were carried out at the very time when the Tallahatchie, Coldwater, and other rivers were pouring their swollen torrents over the upper Yazoo Delta in an unprecedented flood that covered more than 570,000 acres. Carefully controlled study plots were established on representative land types of the region. Every drop of water running off the surface of these plots and every particle of soil washed with it were caught and measured after each rain.

For the flood period, December 15 to February 15, it was found that an average of sixty-two per cent of all the rain falling on cultivated land immediately rushed off the surface, carrying with it soil totaling thirty-four tons an acre. An average of fifty-four

**Forest Service studies show that the floods are due not so much to the quantity of rainfall as to the condition of the lands on which the rain falls. A North Mississippi corn field, where run-off water and eroded soil were caught and measured in the winter of 1931-32. During the flood period, the field lost thirty-four tons of soil an acre.**

per cent of all the rain falling on barren, abandoned fields flowed off immediately. During many rains more than seventy-five per cent and as much as ninety-five per cent of the rainfall ran off these two classes of land and contributed to the quick filling of stream channels. In contrast, an average of ninety-eight per cent of the rain falling on scrub oak woodland was absorbed, only two per cent running off. On unburned broomsedge fields and virgin oak forest, an average of less than one-half of one per cent of the rain flowed off the surface.

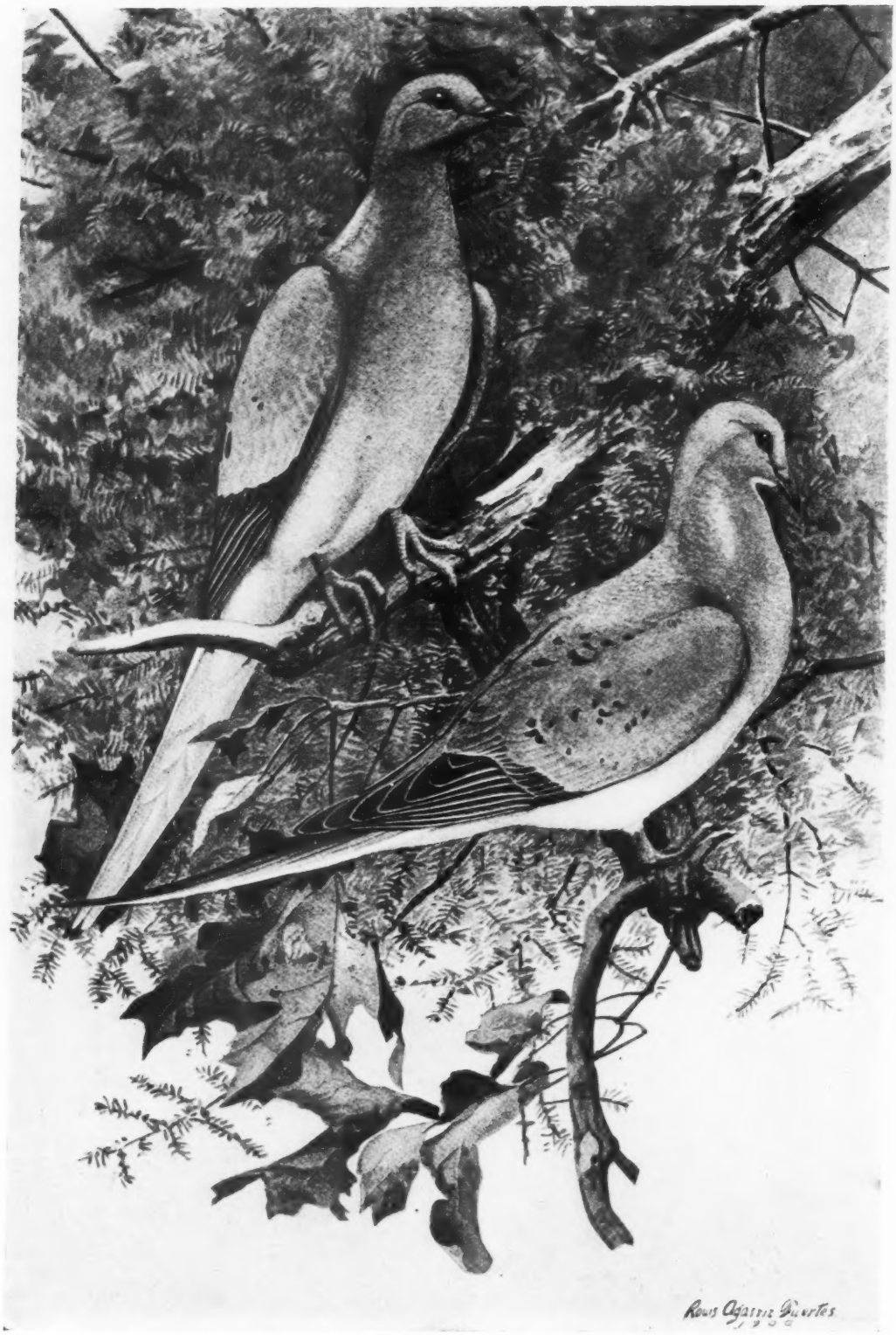
The significance of these figures may be more fully realized if it is pointed out that during the ten-week flood period approximately twenty-seven inches of rain fell on the forested and broomsedge plots. Of this quantity twenty-six and seven-tenth inches, by actual measurement, either was intercepted before it reached the ground or was absorbed by the soil. Even during torrential rains of more than five inches, which sent the Tallahatchie and other rivers to new flood crests, the run-off for the two latter classes of land did not exceed two and five-tenths per cent. As might be expected, such small quantities of surface flow carried off practically no soil. The efficiency of forest and grasses in diminishing run-off can be attributed to a number of causes. When rain falls on forest or grass land an appreciable proportion of it is intercepted by the vegetation and evaporated. The studies in northern Mississippi indicated that about fifteen per cent of the rain falling on forest land during the flood period of 1931-32 never reached the ground. Rainfall velocities, also, are much lessened, and owing to the mechanical obstruction which forest litter or grass offers to surface flow the rain has a greater opportunity to soak into the soil. The absorptive capacity of forest or grassland soil itself is vastly increased beyond that of bare areas by the loosening action of roots, the greater quantities of organic matter, and the greater activity of rodents, insects, and other forms of animal life dependent on vegetation. The leaf litter or rough, is, perhaps, the chief reason why so much water can be absorbed. When rain falls on bare soil the impact causes it to become muddied. As the water sinks through the surface soil layers the finer soil particles suspended in it are filtered out and seal the pore spaces, thus greatly reducing absorption. Where the soil is covered with litter, however, the percolating water remains clear, the soil is not sealed, and absorption goes on fairly continuously even during the heaviest rains.

**Forested land like this showed a run-off of only two per cent of the rain-fall as against sixty-five per cent run-off for cultivated lands.**

**This eroded area on the watershed of the Coldwater River is typical of thousands of acres of land on the watersheds of the headwater tributaries of the Yazoo River and pictures the stupendous loss of soil chargeable to favorable flood conditions.**

The results of the run-off studies are fully in accord with those of less formal observation of surface run-off from various land types in northern Mississippi. A single shower of even moderate intensity is usually sufficient to start

(*Continuing on page* 623)



Fuertes' beautiful figure of the Passenger Pigeon (Columbia Migratoria), whose complete extinction is the most shameful blot in the history of America's bird life. Graphically told by Mr. Bishop in the following pages.

# THE WILD PIGEON

## WITH THE DESTRUCTION OF THE WOODS WENT AMERICA'S GREATEST BIRD OF THE FOREST

By H. O. BISHOP

"Here in the fall, large flocks of pigeons fly,
So numerous that they darken all the sky"
(Written by Thomas Makin, in 1729)

The Last Passenger Pigeon

AT one time there were more wild pigeons in the United States than any other representative of the feathered family. There were millions and millions of them. There were so many that when in flight they would obscure the sun for several hours. But today these beautiful birds are absolutely extinct. None are left to tell the story of their glory.

Away back in 1634, almost a century before the birth of George Washington, and only a few years after the settlement of Jamestown and the arrival of the Pilgrims in Massachusetts, Captain Thomas Yong, in his tale, *Voyage to Virginia and Delaware Bay and River*, says that he found an "infinite number of wild pigeons," in the latter section.

Half a century later, William Penn, in a letter describing the fowls of his new country, speaks of "pidgeons in abundance."

Thomas Makin, in 1729, wrote this verse:

> "Here, in the fall, large flocks of pigeons fly,
> So numerous that they darken all the sky."

Another poet, John Holme, in an early day versified the abundance of the wild pigeon in the following lines:

> "The pidgeon in such numbers we see fly
> That like a cloud they do make dark the sky;
> And in such multitudes are sometimes found,
> As that they cover both trees and ground.
> He that advances near with one good shot
> May kill enough to fill both spit and pot."

Pehr Kalm, a Swedish traveler in America, says he was reliably informed that in the spring of 1740 "there came from the north an incredible multitude of these pigeons to Pennsylvania and New Jersey. Their number, while in flight, extended three or four English miles in length, and more than one such mile in breadth, and they flew so closely together that the sky and the sun were obscured by them, the daylight becoming sensibly diminished by their shadow.

"The big as well as the little trees in the woods, sometimes covering a distance of seven miles, became so filled with them that hardly a twig or a branch could be seen which they did not cover; on the thicker branches they had piled themselves up on one another's backs, quite about a yard high.

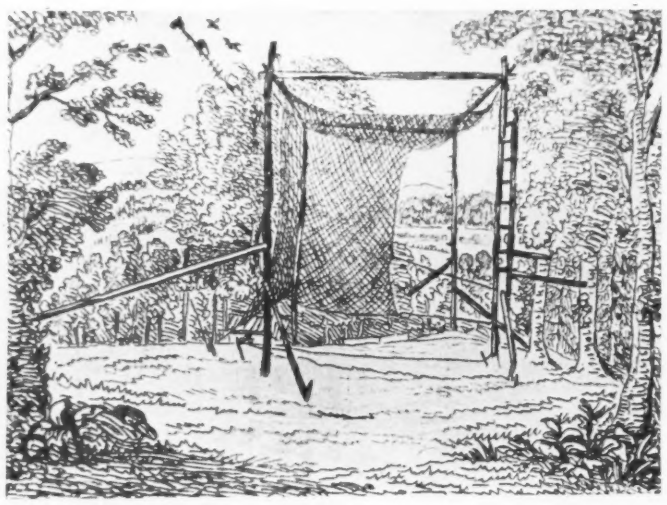
"When they alighted on the trees their weight was so heavy that not only big limbs and branches of the size of a man's thigh were broken straight off, but less firmly rooted trees broke down completely under the load."

This Swedish traveler goes on to say that "as soon as the pigeons had devoured the acorns and other seeds which served them as food and which generally lasted only for a day, they moved away to another place. The Swedes and others not only killed a great number with shotguns, but they also slew a great quantity with sticks, without any particular difficulty; especially at night they could have dispatched as many as their strength would have enabled them to accomplish, as the pigeons then made such a noise in the trees that they could not hear whether anything dangerous to them was going on, or whether there were people about. Several of the old men assured me that in the darkness they did not dare to walk beneath the trees where the pigeons were, because all through the night, owing to their numbers and corresponding weight, one thick and heavy branch after another broke asunder and fell down, and this could easily have injured a human being that had ventured below."

Another statement made by this observant Swedish visitor to our shores is of deep interest: "About a week or a little later subsequent to the disappearance of this enormous multitude of pigeons from Pennsylvania and New Jersey, a sea captain by the name of Aimes, who had just arrived at Philadelphia, and after him several other seafaring men, stated that they had found localities out at sea where the water, to an extent of over three French miles, was entirely covered by dead pigeons of this species. It was conjectured that the pigeons, whether owing to a storm, mist, or snowfall, had been carried away to the sea, and then on account of the darkness of the following night or from fatigue, had alighted on the water and in that place and manner met their fate."

John James Audubon, famous American naturalist, has left a most interesting narrative of the wild pigeon. "In the autumn of 1813," he relates, "I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the Barrens, a few miles beyond Hardinsburg, I observed the pigeons flying from northeast to southwest in greater numbers than I thought I had ever seen them before, and feeling an inclination to count the flocks that might pass within the reach of my eye in one hour, I dismounted, seated myself on an eminence, and began to mark with my pencil, making a dot for every flock that passed. In a short time finding the task I had undertaken impracticable, as the birds poured in in countless multitudes, I rose, and counting the dots then put down, found that 163 had been made in twenty-one minutes. I traveled on, and still met more the farther I proceeded. The air was literally filled with pigeons; the light of noonday was obscured as by an eclipse; the dung fell in spots, not unlike melting flakes of snow; and the continued buzz of wings had a tendency to lull my senses to repose.

"Whilst waiting for dinner at Young's Inn, at the confluence of Salt River with the Ohio, I saw, at my leisure, immense legions still going by with a front reaching far beyond the Ohio on the west, and the beechwood forests directly on the east of me. Not a single bird alighted; for not a nut or acorn was to be seen that year in the neighborhood. They consequently flew so high, that different trials to reach them with a capital rifle proved ineffectual; nor did the reports disturb them in the least. I can not describe to you the extreme beauty of their aerial evolutions, when a hawk chanced to press on the rear of a flock. At once, like a torrent, and with a noise like thunder, they rushed into a compact mass, pressing upon each other toward the center. In these almost solid masses, they darted forward in undulating and angular lines, descended and swept close over the earth with inconceivable velocity, mounted perpendicularly so as to resemble a vast column, and, when high, were seen wheeling and twisting within their continued lines, which then resembled the coils of a gigantic serpent.



**A Pigeon Net**
**(Reproduced from an old etching)**

"Before sunset I reached Louisville, distant from Hardinsburg fifty-five miles. The pigeons were still passing in undiminshed numbers, and continued to do so for three days in succession. The people were all in arms. The banks of the Ohio were crowded with men and boys, incessantly shooting. Multitudes were thus destroyed. For a week more, the population fed on no other flesh than that of pigeons, and talked of nothing but pigeons. The atmosphere, during this time, was strongly impregnated with the peculiar odor which emanates from the species."

Audubon made an interesting calculation of the number of pigeons in one of these great flocks. "Let us take," said he, "a column of one mile in breadth, which is far below the average size, and suppose it is passing over us without interruption for three hours, at the rate of one mile in a minute. This will give us a parallelogram of 180 miles by one mile, covering 180 square miles. Allowing two pigeons to the square yard, we have 1,115,136,000 in one flock. As every pigeon daily consumes fully half a pint of food, the quantity necessary for supplying this vast multitude must be 8,712,000 bushels a day."

The roosting place of one of these monster flocks and what happened to them during the night is thus related in minute fashion by Audubon: "One of these curious roosting places, on the banks of the Green River in Kentucky, I repeatedly visited. It was, as is always the case, in a portion of the forest where the trees were of great magnitude, and where there was little underwood. I rode through it upward of forty miles, and, crossing it in different parts, found its average breadth to be rather more than three miles. My first view of it was about a fortnight subsequent to the period when they had made choice of it, and I arrived there nearly two hours before sunset. Few pigeons were then to be seen, but a great number of persons, with horses and wagons, guns and ammunition, had already established encampments on the borders. Two farmers from the vicinity of Russellville, distant more than 100 miles, had driven upward of 300 hogs to be fattened on the pigeons which were to be slaughtered. Here and there, the people employed in plucking and salting what had already been procured, were seen sitting in the midst of large piles of these birds.

"Many trees two feet in diameter were broken off at no great distance from the ground, and the branches of many of the largest and tallest had given way, as if the forest had been swept by a tornado. Everything proved to me that the number of birds resorting to this part of the forest must be immense beyond conception. As the period of their arrival approached, their foes anxiously prepared to receive them. Some were furnished with iron pots containing sulphur, others with torches of pine knots, many with poles, and the rest with guns. The sun was lost to our view, yet not a pigeon had arrived. Everything was ready, and all eyes were gazing on the clear sky, which appeared in glimpses amidst the tall trees.

"Suddenly there burst forth a general cry of 'Here they come!' The noise which they made, though yet distant, reminded me of a hard gale at sea passing through the rigging of a close-reefed vessel. As the birds arrived, and passed over me, I felt a current of air that surprised me. Thousands were soon knocked down by the pole men. The birds continued to pour in. The fires were lighted, and a magnificent, as well as wonderful and almost terrifying sight presented itself. The pigeons, arriving by thousands, alighted everywhere, one above another, until solid masses as large as hogsheads, were formed on the branches all round. Here and there the perches gave way under the

weight with a crash, and falling to the ground destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded. It was a scene of uproar and confusion. I found it quite useless to speak, or even to shout to those persons who were nearest to me. Even the reports of the guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading.

"The pigeons were constantly coming, and it was past midnight before I perceived a decrease in the number of those that arrived. The uproar continued the whole night, and as I was anxious to know what distance the sound reached, I sent off a man accustomed to the forest, who, returning two hours afterwards, informed me he had heard it distinctly when three miles from the spot. Toward the approach of day, the noise in some measure subsided; long before objects were distinguishable, the pigeons began to move off in a direction quite different from that in which they had arrived the evening before, and at sunrise all that were able to fly had disappeared. The howlings of the wolves now reached our ears, and the foxes, lynxes, cougars, bears, raccoons, opossums and polecats were seen sneaking off, whilst eagles and hawks of different species, accompanied by a crowd of vultures, came to supplant them, and enjoy their share of the spoil. It was then that the authors of all this devastation began their entry amongst the dead, the dying, and mangled.

**A museum grouping of these beautiful birds, which at one time were so plentiful their flights darkened the skies.**

"The pigeons were picked up and piled in heaps, until each had as many as he could possibly dispose of, when the hogs were let loose to feed on the remainder. Persons unacquainted with these birds might naturally conclude that such dreadful havoc would soon put an end to the species. But I have satisfied myself, by long observation, that nothing but the gradual diminution of our forests can accomplish their decrease, as they not unfrequently quadruple their numbers yearly, and always at least double it. In 1805 I saw schooners loaded in bulk with pigeons caught up the Hudson River, coming into the wharf at New York, when the birds sold for a cent a piece. I knew a man in Pennsylvania who caught and killed upwards of 500 dozens in a clapnet in one day, sweeping sometimes twenty dozens or more at a single haul. In the month of March, 1830, they were so abundant in the markets of New York, that piles of them met the eye in every direction; and yet, in Louisiana, in 1826, I saw congregated flocks of these birds as numerous as ever I had seen them before, during a residence of nearly thirty years in the United States."

The nests of the pigeons, according to Audubon, were composed of a few dry twigs, crossing each other, and supported by forks of the branches. From fifty to a hundred nests would be seen on one tree. During incubation the male would supply the female with food, and was the kindest and gentlest thing in creation. As soon as the young pigeons had become pretty well grown and were fat, along would come their arch enemy—man. Men would chop down the trees in such a manner as to cause several others to fall or shake others to such an extent as to knock the young ones down to the ground.

Alexander Wilson, in his *American Ornithology*, says "The wild pigeon of the United States inhabits a wide and extensive region of North America, on this side of the Great Stony Mountains, beyond which, to the westward, I have not heard of their being seen. According to Mr. Hutchins, they abound in the country around Hudson's Bay, where they usually remain as late as December, feeding, when the ground is covered with snow, on the buds of the juniper. They spread over the whole of Canada; were seen by Captain Lewis and his party near the Great Falls of the Missouri, upwards of two thousand five hundred miles from its mouth, reckoning the meanderings of the river; were also met with in the interior of Louisiana by Colonel Pike; and extend their range as far south as the Gulf of Mexico, occasionally visiting or breeding in almost every quarter of the United States."

One authority in speaking of the swiftness of the wild pigeon says their great power of flight enables them to survey and pass over an astonishing extent of country in a very short time. He cites the case of pigeons having been killed in the city of New York, with their crops full of rice, which they must have eaten in the rice fields of Georgia and Carolina, these districts being the nearest in which they could possibly have procured a supply of that kind of food.

As their power of digestion is so great that they will decompose food entirely in twelve hours, they must in this case have traveled between three hundred and four hundred miles in six hours.

James Fenimore Cooper, in two of his novels, *The Pioneer,* and *The Chainbearer,* speaks of the wild pigeon. The following excerpt is from the *Chainbearer:* "The pigeon is not a noisy creature, but a million crowded together on the summit of one hill, occupying a space of less than a mile square, did not leave the forest in its ordinary impressive stillness. * * * While standing wondering at the extraordinary scene around us, a noise was heard rising above that of the incessant fluttering which I can only liken to that of the trampling of thousands of horses on a beaten road. This noise at first sounded distant, but it increased rapidly in proximity and power, until it came rolling in upon us, among the tree-tops, like a crash of thunder. The air was suddenly darkened, and the place where we stood as somber as dusky twilight. At the same instant, all the pigeons near us, that had been on their nests, appeared to fall out of them, and the space immediately above our heads was at once filled with birds.

"Chaos itself could hardly have represented greater confusion, or a greater uproar. As for the birds, they now seemed to disregard our presence entirely; possibly they could not see us on account of their own numbers. Each of us caught one at least in our hands, while Chainbearer and the Indian took them in some numbers, letting one prisoner go as another was taken.

"I have since had the curiosity to make a sort of an estimate of the number of birds that must have come in upon the roost, in that, to us, memorable moment. Such a calculation, as a matter of course, must be very vague, though one may get certain principles by estimating the size of a flock by the known rapidity of the flight, and other similar means; and I remember that Frank Malborne and myself supposed that a million of birds must have come in on that return, and as many departed. As the pigeon is a very voracious bird, the question is apt to present itself, where food is obtained for so many mouths; but, when we remember the vast extent of the American forests, this difficulty is at once met. Admitting that the colony we visited contained many millions of birds, and counting old and young, I have no doubt it did, there was probably a fruit-bearing tree for each, within an hour's flight from that very spot! Such is the scale on which nature labors in the wilderness!"

Chief Simon Pokagon, a full-blooded Indian, writing in *The Chautauquan,* many years ago gave this poetic description of the mating of the wild pigeons: "About the middle of May, 1850, while in the fur trade, I was camping on the head waters of the Manistee River, in Michigan. One morning on leaving my wigwam I was startled by hearing a gurgling, rumbling sound, as though an army of horses laden with sleigh bells was advancing through the deep forests towards me. As I listened more intently I concluded that instead of the tramping of horses it was distant thunder; and yet the morning was clear, calm and beautiful. Nearer and nearer came the strange commingling sounds of sleigh bells, mixed with the rumbling of an approaching storm. While I gazed in wonder and astonishment, I beheld moving toward me in an unbroken front millions of pigeons, the first I had seen that season. They passed like a cloud through the branches of the high trees, through the underbrush and over the ground, apparently overturning every leaf. Statuelike I stood, half-concealed by cedar boughs. They fluttered all about me, lighting on my head and shoulders; gently I caught two in my hands and carefully concealed them in my blanket.

"I now began to realize they were mating, preparatory to nesting. It was an event which I had long hoped to witness; so I sat down and carefully watched their movements, amid the greatest tumult. I tried to understand their strange language, and why they all chatted in concert. In the course of the day the great on-moving mass passed by me, but the trees were still filled with them sitting in pairs in convenient crotches of the limbs, now and then gently fluttering their half-spread wings and uttering to their mates those strange, bell-like wooing notes which I had mistaken for the ringing of bells in the distance."

This same Indian chief also stated that a pigeon nesting was always a great source of revenue to his people. Whole tribes would wigwam in the brooding places, but they seldom killed the old birds. Great preparation, however, was made to secure their young, "out of which the squaws made squab butter and smoked and dried them by thousands for future use."

One of the best authorities on the wild pigeon in the United States is Henry D. Paxson, of Philadelphia. He spent many years gathering data on this subject. He says: "Just before the pigeons became practically extinct, naturalists held to the theory that they formed one great colony, and this seems to be borne out by the fact that during the nesting season they would be found in one part of the country covering a vast territory, and they would be found nowhere else in that section, except in isolated flocks, perhaps on the wing to join the common nesting ground. But while there may have been but one great colony, it is also true that they generally arranged to nest in two or three colonies in different parts of the country. Proximity to beech woods was always chosen for the pigeon roosts and nestings, and that was why the northwest part of Pennsylvania was a favorite resort of the colony. The last time any part of the colony sought the forests of western Pennsylvania was in 1886. The main body nested there last in 1880, when it covered five miles square in Forest County, and many in the counties of McKean and Warren. This section they visited regularly, there never having been a year within the recollections of the inhabitants when some part of the colony did not nest there. The main colony itself filled these woods in 1867, 1868, 1871 and 1878 and 1880. In 1880, part of the main colony nested in Indian Territory. In 1886, the great part of the colony was in Missouri. The wild pigeons deserted their favorite nesting regions in southern New York and eastern Pennsylvania in 1876. Since that date, except in isolated flocks, no wild pigeons have been seen east of the Allegheny River.

"Now, as to the cause which led to the extinction of the wild pigeon. There is an element of mystery connected with its somewhat sudden extermination, and this has been the cause of a long and acrimonious controversy. On the one hand many naturalists and other persons contend that the main cause of the bird's extinction was the destruction of the source of food supply when the forests were cleared away. Beyond the shadow of a doubt, the human, or rather inhuman assaults on their nesting was one of the main factors of extinction. People turned their hogs into the nestings to feed upon the eggs and young birds fallen from the nests. Millions were trapped, clubbed to death and even scorched with flambeaux, then packed in barrels and sent to market. They were an important source of food supply, first to the pioneer and backwoodsman, and then to the cities. So important a factor were these birds in the economy of western Pennsylvania that their disappearance in 1886 was as great a blow to the woodsman as would have been the disappearance of the woods themselves. As showing the enormous quantity killed it is related that in 1874 five carloads were shipped from one (*Continuing on page* 620)

# Growing Timber for Profit

## Speeding Up Tree Growth by Using Planting Stock of Known Heritage

By WILLARD G. BIXBY

THE constant and rapid depletion of America's timber supply has been viewed with alarm for a long time, but as yet no adequate remedy has appeared. The desirability of keeping much of the nation's land growing choice timber is seemingly offset by the practical impossibility of doing it, except at tremendous costs. In many cases cut over lands protected from fire will revert to timber naturally, but the trees that first come up are generally the least valuable. The more valuable species will probably crowd out those of lesser value, but that will take a long time, and the only practicable method of getting forests of valuable trees in reasonable time is to plant them.

This has been done in many instances, but usually the cost of trees and planting plus the carrying charges for fifty years or so has been more than was obtained for the timber. Some figures in Bulletin Number 1497, United States Department of Agriculture, *Forest Planting in the Lake States*, bring this out clearly, but the author does not emphasize the conclusions that may be logically drawn from the data. In this bulletin the yield of a fifty year old forest of white pine and Norway pine on good soils is given as 10,000 board feet an acre. A less amount is shown on medium soils and still less on poor soils. The probable stumpage price of fifteen dollars for 1,000 feet is about fifty per cent above the present market. This seems a fair estimate of future stumpage prices and would give a yield of $150 an acre. The cost of trees and planting obtained from operations of 500 to 1,000 acres with experienced crews is $3.37 to $26.97 an acre, depending on the age of the trees planted, their spacing and the methods used. The writer's experience indicates that these figures are low and that many plantings have cost more. AMERICAN FORESTS for December, 1931, describes the planting of 165,168 acres to trees in Great Britain during 1919-1930, where the average cost was $46 an acre. The cost of land was not considered in figuring carrying charges, but that would only add to the timber growing losses which are already staggering.

If to an average cost of $14 an acre for trees and planting were added fifty years' carrying charges of six per cent interest and two per cent taxes, there would be a cost of $656 an acre. This is about four times the amount to be received for timber. Cultivating for a few years to keep down the weeds has been tried and stimulates the growth of the young trees but the additional expenditure gives results about the same, viz., cost of growing about four times what is received for the timber. Results like these effectually discourage tree planting by individuals.

There is an increasing popular pressure toward ownership and management of forests by federal, state, county, and town governments and by other public agencies. More has been done along this line in the past few years than in the past century. By so doing, losses in timber growing are not eliminated but are lost sight of. Such work is being undertaken in Michigan, Wisconsin and Minnesota, but to plant the land in those three states now urgently in need of reforestation would take 1300 years.

The writer has been enthusiastic on the subject of reforestation, but his enthusiasm has cooled in the past three or four years. He owns some four hundred acres of forest land in a part of the country where the Government made a large purchase about five years ago. The year after this purchase was made, his taxes were increased thirty-seven and one half per cent and have kept up since. The Government-owned land is not taxed, so a large area of taxable land became tax exempt. Necessary school expenditures were not reduced by the removal of taxable property from the assessment rolls and the practical result of these publicly owned forests was to assess taxes so lost on adjoining property. This may be an aggravated case, but it illustrates what happens when public agencies undertake that which private effort cannot successfully conduct.

The appropriations of the United States Government for all kinds of forestry purposes in 1931 were over $16,000,000. In the same year the State of New York authorized an expenditure of $20,000,000 for reforestation. Expenditures of many other states, counties, towns and cities were also large. While the carrying charges may be lower because public agencies can secure money at lower interest rates than individuals, the value of timber grown under these expenditures is almost certain to be less than the cost of production. This presents a serious problem, because regardless of the urgent need of reforestation, taxpayers may demand that it be stopped when they realize that extension of public reforestation work really means increased taxes.

Can anything be done about it? The outlook is really most discouraging to those who believe the maintenance of forests is essential to the welfare of our country. But if forests cannot be grown with profit to the private owner, it is almost certain that they cannot be grown with profit to the government or other public agencies. In such a situation one cannot believe tree planting is going to be done to the extent it should. Various plans have been suggested for state aid to the tree planter, but outside of a sane method of taxing growing timber only once like other crops, instead of every year, the writer believes much will not be done or is desirable. When the best figures show probable costs greatly in excess of what the timber is likely to bring after it is grown, a situation arises which demands that the problem be attacked in a new way. No policy that is economically unsound will be long maintained.

In this connection it will be helpful to consider what has been done to make the growing of other plants profitable, for trees are plants and capable of similar improvements. At present practically no attempt is made to plant superior trees. By this is not meant superior species. The species that promises best may be selected but no attempt to plant superior trees of a given species is made.

The modern apple grower does not raise apple trees from

seed, plant them out and attempt to sell the apples so grown. Apple trees that will bear large, attractive, well flavored apples that will sell at good prices are planted. While apples borne by seedling trees are so poor as not to be worth picking, fine apples bring profits to the grower. The rose grower does not plant rose seed, set out the bushes so grown and expect to sell the roses. People would not buy them, for the roses would be of too poor quality. He plants bushes that will bear large attractive, sweet smelling roses for which the public will pay good prices. To make timber growing profitable, methods similar to those used in profitable growing of apples, roses, or any other crop must be used. This means that profitable timber growing must be with superior trees.

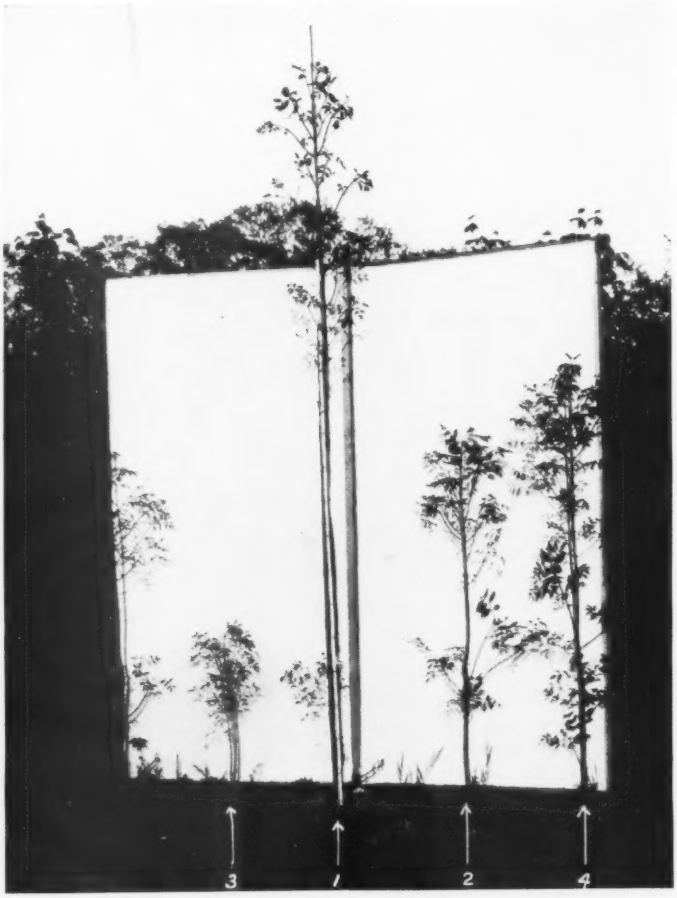
At present no attempt is made to plant timber trees that will grow with more than average rapidity. It is practically impossible to select seedlings which will prove most rapid growing trees. In the struggle for existence a considerable proportion will die, and about fifty per cent of the more vigorous growers among the trees are left. This is all right as far as it goes, but if trees could be planted that would grow much faster than the average of this best half, there would be something worth while. The essential problem connected with profitable reforestation might be solved, which is to reduce the time required to mature the crop.

If the time required to grow trees can be reduced, the cost of growing will be reduced in a much greater degree. For example, if the planting cost is $14 an acre and the lowest annual return that would satisfy a person planting timber is six per cent with taxes two per cent, the cost after one year would be $14 multiplied by 1.08. Figuring the cost after a number of years requires the use of higher mathematics, but the cost after fifty years is 46.88 times the planting cost. Furthermore, if a crop of timber matures in forty-five years its cost will be sixty-eight per cent of the cost when maturity is fifty years; in forty years forty-six per cent; in thirty-five years thirty-two per cent; in thirty years twenty-two per cent; in twenty-five years fifteen per cent; in twenty years ten per cent, and in fifteen years seven per cent.

Thus if the time required to mature a crop of timber can be reduced to twenty-five years the cost of production will be about one-seventh of the cost of a crop requiring fifty years to mature. This would make timber growing profitable. If the time to mature a crop of timber can be reduced to twenty years or fifteen years, substantial profits will result.

The important thing is to ascertain the extent to which the time of timber growing can be reduced. Examples that have come under the observation of the writer during the past four years throw light on this point.

A group of sugar maple trees have been seen which were practically all of one size when set out, but after five years remarkable differences of diameter and height were shown by several trees. They were arranged in two groups, one with trees under average size and one with them over average size. The cubic volume of the larger trees was about three and a half times that of the smaller ones, but one of the better trees is making over double the growth of the average of that group. This may mean that this superior tree would accomplish as much in twenty-five years as the average tree would do in fifty years. Were this to materialize, the planting cost and carrying charges would be reduced to about one seventh, and the cost would be sufficient to make planting timber profitable.




**A group of five ash seedlings photographed in September 1930, after four years' growth from seed. All were approximately the same size in the spring of 1928, when one year old.**

Another group of fifty-four white ash seedlings which were all of one size when set out, grew four years and were measured. One half included trees containing approximately two and a half times the volume of wood found in the smaller trees. But a single one of these larger trees was fifteen feet five inches tall, and one and three-eighth inches in diameter in the fall of 1931. It contained over three times the volume of the average of all the larger trees. Can one decide from this that in seventeen years this tree would reach a size equal to fifty years' growth of the average larger tree? Should this be true, planting and carrying charges would be reduced to about one-fourteenth of what could be expected of the larger trees, and a substantial profit could be made growing ash trees.

To compare the most rapid growing ash with an average from the forest, the diameter and height of each of the fifty-four trees in the row were measured and the volume of the main stem calculated. The twenty-seven largest had an average volume of 48.03 cubic inches and the smallest ones 20.27 cubic inches. The average for the entire lot was 32.43 cubic inches. There was a comparatively uniform gradation

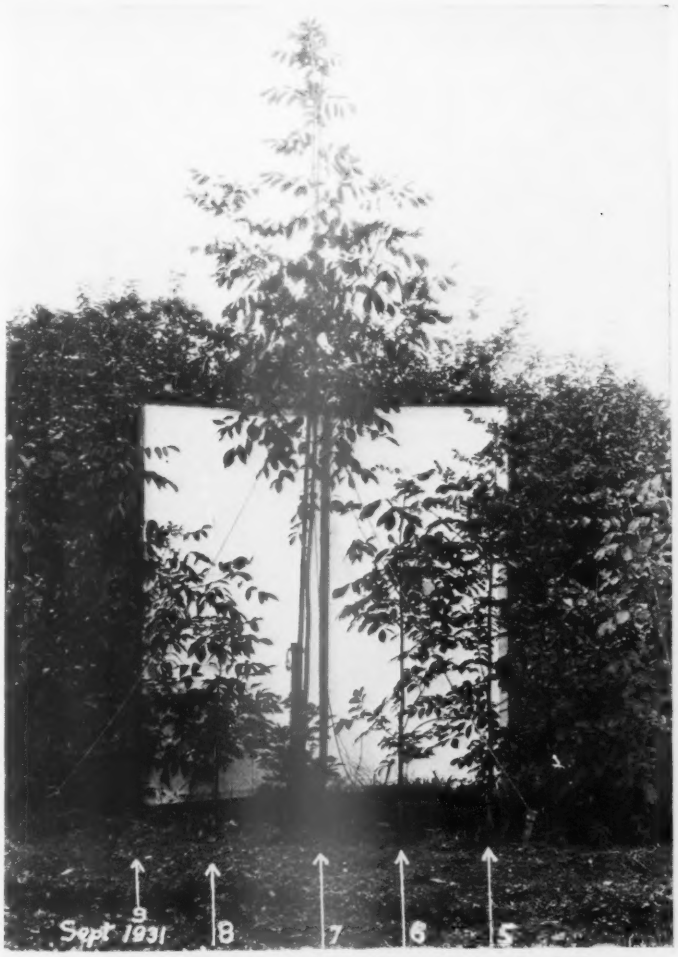
from the smallest to the largest, whose volume was thirty-seven times that of the smallest tree.

Four years ago the writer saw four walnut trees about twelve inches in diameter and forty feet high whose tall straight trunks were without limbs for some twenty feet. From the best information they were not over fifteen to seventeen years old. Here again a merchantable tree was produced in one-third of the usual fifty years.

AMERICAN FORESTS for April, 1931, describes a Moline elm which in seven years became forty feet high and eight inches in diameter. Even were the tree one inch in diameter when set out this would be a diameter increase of over one inch a year. One may question if this tree will keep growing at this rate during a long life, but the writer knows a one hundred year-old elm seventy-six inches in diameter. This tree had an average increase in diameter each year of its one hundred years of existence of three-fourths of an inch. Though growing in a lot some twenty feet below the street its top is level with the tops of elms on the street which are seventy-five years old and twenty inches to thirty inches in diameter. It contains several times the volume of these street trees. These examples show that trees of several species of unusually rapid growth are occasionally found.

The planting of superior trees is really applying to timber growing the same principles which make other branches of agriculture profitable. Only when the timber grower does this can he grow timber at a profit.

While the problem of reforestation will not be entirely solved until each valuable species can be planted at a profit, a beginning can be made by working with those species whose wood has a high selling value and is least subject to competition from wood substitutes. For example, white ash in New Hampshire has a stumpage value double that of any other native wood; hickory has a high market value for ax and hammer handles; walnut and some others are equally promising.




**The same ash trees a year later. Note the growth of No. 7, which corresponds with No. 1 in the preceding photograph. The trees have not been fertilized. The screen is the same in each photograph, being eight feet square.**

The problem of securing these superior trees is similar to work on which the Northern Nut Growers Association has been engaged during the past twenty years. The Association is searching for trees which bear better than usual nuts, while the timberman should be looking for trees which can produce wood two or three times as fast as the usual trees to be found in the forest. But the methods of finding the trees that bear superior nuts and of finding trees that will quickly produce superior timber are so similar that practically the same methods may be used. Indeed a given amount of effort put on the problem of finding superior timber trees will be more productive of results than the same effort of finding superior nut trees, for nut trees usually bear but one good crop in several years and only a good crop can determine the merits of the nuts, while a timber tree can be viewed every year and at all times of the year.

Having found superior trees, the next problem is to multiply them. This cannot be done by planting seeds, for seedling trees vary tremendously. Some method must be used whereby each tree planted is actually a part of the original tree. Many plants are propagated by planting a "cutting" or piece of the plant, but trees that reproduce themselves in this way are limited. The willows and poplars are the best known. Other methods of multiplying trees will have to be worked out experimentally, but they will doubtless vary with each kind. It is believed, however, the methods of doing this will be less expensive and troublesome than feared. For example, during the summer of 1931 an attempt was made to multiply the rapid growing ash. While the first trees cost over $5 each, further work leads to the hope that they can be produced for five cents or less.

The possibilities of getting improved plants by hybridization has not been overlooked. The writer is keenly aware of the possibilities and has made several thousand nut tree hybrids. These have been planted out preparatory to selecting the best. Remarkable results are obtained between ordinary parents, but the work on nut tree hybrids has shown that trees of excellence will produce progeny as superior to those of ordinary trees as the superior trees themselves are better than ordinary. Until individual timber trees of superior qualities are discovered, timber tree hybridizing is hardly worth while. Therefore, energy must first be directed to learning of superior trees already growing. Only after a fair number of these have been secured should improvement by hybridizing be undertaken.

To sum up, the way to make tree growing profitable is to learn of trees of valuable species that are superior to average trees; learn how to reproduce them vegetatively; and plant these trees instead of ordinary seedlings. This will take real work intelligently directed. But a fraction of the amount now being expended annually (*Continuing on page* 620)

# ETIQUETTE AMONG THE BEASTS

(*Continued from page* 581)

basins of the ponds, touching all hearts with the starry glamour of love.

At daybreak one morning I went into those fragrant glimmering woods, having with me nothing but a turkey-call made out of a willow limb. Seating myself on an old pine stump, I gave one soft note. Immediately the gobbler answered from a tall cypress on the creekbank a half-mile away. Now, what stirs a gobbler at such a time is not so much the feminine voice as suspense and pique. He hears the female, but the caller must pretend that she is not the seeker, but the sought. To my surprise, after I had given that one persuasive note, a splendid black form suddenly filled the rosy morning heavens. This grand old hermit was flying straight for me. Watching him very closely, my hand on my call, the moment he came to ground about a hundred yards off, I made him aware of the place where his shy sweetheart was waiting. As there was no underbrush near, I could see precisely what he did. Listening keenly for a moment, he then came for me on a dead run, stopped thirty yards away to strut in most grandiloquent fashion, and to gobble blatantly. Then he advanced in all the sheeny grandeur of his nuptial plumage. When I moved, he was, of course, startled; but fear was not his chief emotion. He felt more disappointment and disgust. He did not fly. He did not run. He just stalked away with injured majesty. He had proved to me what on old woodsman had once said to me: "There ain't nary a surveyor can run a line as straight as a gobbler will fly to a hen in the springtime."

Perhaps not many of my readers will ever have an opportunity to watch love transform America's noblest game bird. But surely all of us know the common mourning dove. Only in the season of courting and of mating does the male execute his singular sailing. Rising usually to a height considerably above the tallest trees, he sets his wings and volplanes,—now in a straight line gradually downward, now in slow wide circles. At such a time he looks larger than ordinary, and there is something very bold about both his demeanor and his maneuvering, which can hardly fail to impress his tender-hearted retiring mate. It sometimes occurs that when the doves are mated and in love's rapturous full accord, the female will join the male in the execution of his strange and difficult aerial stunts. The cooing of doves throughout the spring and summer is likewise a manifestation of their devotion. In the autumn and winter a note is seldom heard.

I once observed the mating of two quail that had in it a peculiar power to awaken by suggestion both the memory and the anticipation of the aristocratic, somewhat haughty female. In some soft grass along an old fence-row the cock ran ahead of his ladylove, and every few moments would squat in the grass and settle himself deep into its yielding fragrance by turning himself quickly from side to side. When he had made this "nest," he would step forth and chitter softly for the female to come up and be reminded of what joys had been theirs, and of what were still in store for them if she would only be kind.

In much of the affection of wild mates for each other there is a depth and there is a tenderness of consideration that are heartening, proving that, after all, love has a part in the grand scheme of creation and evolution, and we see its light gleaming even in obscure places and even in humble hearts. There is clear evidence that mated wild things care for each other with a genuineness of affection far beyond what can be accounted for by mere physical attraction.

Of the love-life of these birds, I think that of the cardinal is most appealing. The birds apparently mate for life. They go in pairs, even in the dead of winter; and even then they call cheerily to each other; and even when the world is icicle-hung, they remember love, and carol in its name clear scarlet madrigals. As the winter wanes, the song becomes fuller.

All about us in the woods and the fields and the sky and the grass are the loving. And they have their etiquette about it. In our distractions of this kind we are not alone; and our own difficulties should be somewhat mitigated when we reflect that all living things are subject to the law of love; and that we are privileged so to interpret this law in its sacred aspect as to render life through it a spiritual adventure. It teaches us the sterility of mere physical or mental power. As far as we can tell, love in its highest sense is the only thing that survives these mortal years. There's deep and tremendous significance in that—a hope large enough to enable us to face serenely whatever may befall.

Another display of good manners—taking that term in a broad and generous sense—is the large tolerance with which wild creatures in general regard one another. Of course there are fights, originating almost wholly in love-rivalry; and there is the ancient feud between predatory creatures and their prey. But birds and animals are free from many of those causes which make human existence a continuous, and often a savage, competition. Because of the absence of most of those forms of rivalry known to us, nature's children have developed among themselves the noble decorum of a wide tolerance. There are no social climbers. There are no business antagonists. There are no fantastic jealousies over place and power. But there does appear to be a bond of a consciousness of the rights of others. To a far greater degree than is commonly realized, they dwell together in unity.

I know a curious example of this admirable spirit of tolerance. In a huge dead pine on my place in the South there is a series of hollows, one above the other; the lowest is at a height of about thirty feet, and the highest at ninety-three. In all there are seven separate hollows. During the course of a single mating season I have known these homes to be occupied by a pair of bluebirds, of black pileated woodpeckers, of flickers, of fox-squirrels, of screech-owls, and of sparrow-hawks! Here were six families, of entirely different nationalities, let us say; yet all living happily, one above the other, in the same tenement. Let us admit that such serenity required genuine tact and observance of etiquette.

On Bull's Island, unquestionably the finest private game preserve in America, I have often watched the wild creatures coming forth from the dense tropical forest to feed on the wide marshlands at sundown. This island is fairly alive with cattle, deer, turkeys, hogs, and goats; and all of them are equally wild. At sunset the turkeys go to roost in the great pines and the moss-shrouded oaks; the hogs then abate their foraging. But twilight seems to herald the activity of the cattle and goats, and especially of the deer.

Being a good sport is, in a deep sense, showing good manners. Birds and animals have a gallantry of bearing that seems a part of their code of behavior. They bear disappointment, pain, death with a courage that is extraordinary. As a rule they never complain. A certain resiliency of spirit is theirs, a certain grace of heart. A friend of mine, hearing me "take up" for the children of nature, is fond of objecting in this way: "But animals never do anything; they never achieve."

Yet they have solved the problem of living joyously and completely; and is not that victory a supreme achievement? Great behavior—and by that I mean serenity, an ease and appropriateness of manner on all occasions—is superior to a great act. Or else it is in itself the greatest of all deeds. Such behavior I find in birds and animals; they find joy and security not in observing an artificial etiquette of fashion, but the deeper etiquette of life, based on the laws of nature, which are the will of God.

# EDITORIAL

## State Forestry in Virginia

LAST month forestry in Virginia was shaken by an announcement from the Commission on Conservation and Development that it had asked Chapin Jones, who has served as State Forester for the past seventeen years, to resign on or before March 1, next. The commission's indictment against the State Forester, it developed, was based upon alleged inefficiency in the administration of the State Forestry Department. Mr. Jones forthwith notified the commission that he refused to resign and demanded a public hearing at which the full facts surrounding the commission's action and its specific bill of particulars against him would have impartial consideration. The commission's action came as a complete surprise to the people of the state and gave rise to reports and implications that political considerations were at the bottom of the affair. Leading papers of the state joined with Mr. Jones in demanding a fair hearing, pointing out that it seemed strange for the commission to take seventeen years to discover his inefficiency.

The success of state forestry in every state in the union depends upon keeping forest work free of politics or the color of politics. Otherwise, this field of public service will repel rather than attract the caliber of men required, and state forestry will fail signally in its larger social and economic objectives. Colored as it is with suspicion that the commission is sacrificing its State Forester upon a political cross, the Virginia case involves more than the welfare of Mr. Jones. Until it is clarified, it will be a blighting influence upon state forestry as well as other professional fields of state public service. The commission should not fear public scrutiny of its act. No one will deny it the right to dismiss men found to be unqualified as conservation officers. But the fact that its action in this instance is questioned by many people emphasizes the urgency of a searching and impartial review of the case.

In the general field of forestry, Mr. Jones has long enjoyed a reputation as an able and efficient State Forester. Under his leadership and administration, Virginia's Department of Forestry has rated high in the judgment of the United States Forest Service, which works in close contact with the State Department in cooperative forest fire protection under the Clarke-McNary Act. If his administration has been inefficient, particularly in the organization of forest fire work, the Federal Government would have detected it. Only a few months ago, a commission created by the last Virginia Legislature to study forestry conditions in the state paid high compliment to Mr. Jones. The commission's report, prepared after exhaustive study of Virginia forest conditions, said:

> "The selection of Chapin Jones as State Forester as of March 1, 1915, was an exceedingly happy one. His services through the years have been invaluable to the state. Naturally talented and adequately prepared, he has constantly exhibited an overwhelming interest in his work and has devoted himself to it unsparingly. Moreover, the commission is of the opinion that the morale of the entire personnel of the Virginia Forest Service is high; that the employees are deeply interested in the success of the Service, and are giving to the state the best that is in them."

How does the Commission on Conservation and Development reconcile its action with the finding of this special commission? It would appear that some one is wrong, and in fairness to Mr. Jones, his department and state forestry in general, a thorough and unbiased investigation of the case is demanded.

# THROUGH THE LENS

A Lively Alpine Chipmunk

## Short Lessons in Photography for the Outdoorsman

### PHOTOGRAPHING WILD BIRDS AND MAMMALS

By JOSEPH S. DIXON

WHILE whole volumes have been written on this one subject, it has been the author's experience that the average results of the outdoor man who seeks to photograph living wild birds and mammals in their native habitats are often disappointing. This is usually due to two causes: (1) the inherent difficulties involved; and (2), lack of proper equipment for this particular branch of photography.

The outdoor man is well aware of the fact that many animals are active only during early morning or late evening hours when the light is, photographically speaking, poor or even impossible. Added to this handicap, we have the rapid movements of living wild animals, especially when they are alarmed or sometimes even when their mere interest is excited. Usually the photographer is not able to approach close to the subject to be photographed. For this reason, best results cannot be obtained with the ordinary kodak, and especial equipment becomes necessary. In the writer's experience, a rapid, long-focus lens is one of the basic requirements for this sort of work. Since the animals move about, it is desirable to have the lens supplemented by a focal plane shutter and that it be mounted on a Graflex or some other kind of reflecting camera. However, for extreme speed work, such as that of photographing birds or animals in full flight, the Speed Graflex type of camera, with its fast lens, focal plane shutter, and direct view finder, is an ideal outfit.

After investigating a full quota of long focus and telescopic lenses, the author's choice has rested upon the "fixed separation" type of telescopic lens, such as the Dallmeyer, Dallon, or the Teleross. These lenses are

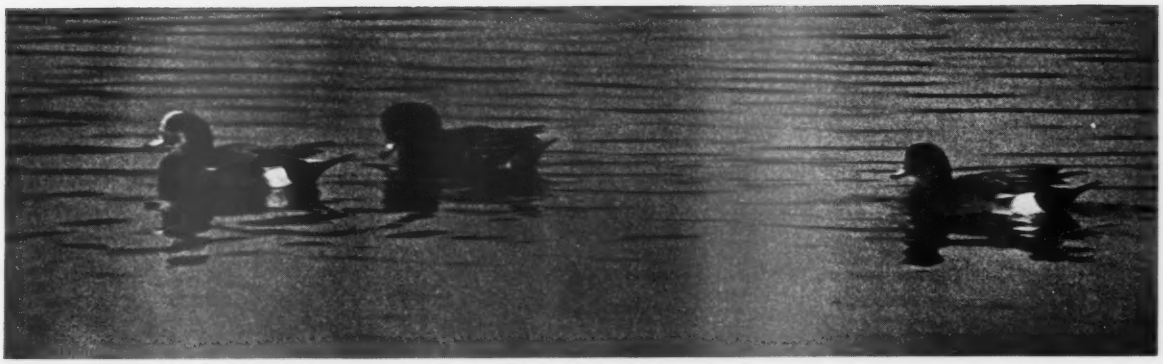
**Joseph Dixon admits his hobby to be animal photography, and he is well grounded to express himself fully along that line despite the fact that, as he says, often results may be disappointing. Born at Quaker Valley, near Galena, Kansas, in 1884, he attended the Throop Polytechnic Institute at Pasadena, graduating in 1909. His love for and enthusiastic interest in animals led to further study in zoology at Stanford and forestry at the University of California, followed by his appointment as Economic Mammologist there. His investigations and reports on habitats, feeding and other animal problems have been a valuable contribution to the science. He is at present engaged in a survey in this field for the National Park Service.**

easily mounted upon ordinary Graflex cameras of short extension and give a large image even at a reasonable distance.

After using many brands of "press" and other fast plates, as well as cut film, roll film, and film pack, the author's choice has narrowed down to panchromatic cut film, which can be obtained in various speeds and which has the advantage of being sensitive to all colors and is, at the same time, light and portable. It should be remarked at this point that the published speeds of these emulsions are usually figured upon a black-and-white basis, and, since many of the animals and birds to be photographed have rich reddish or brown colors, I have found in actual practice that a panchromatic film may be actually faster for such subjects than a "speed" plate or film which is given a much higher black-and-white rating.

As to methods of working, I have found that certain small mammals and birds have definite lookout or feeding posts, and that a camera may be set up on a tripod, focused upon

**The Chickadee's Luncheon**



**A Trio of Baldpates**

**Three Bull Elk, Feeding at Evening**

**So many varying factors enter into the successful photography of game and wild life that, the author says, these handicaps must be overcome by the use of special equipment which he describes. The striking studies reproduced on this page are examples of his work.**

the spot that the animal is known to occupy, and then released by the operator at a distance by pulling on a thread after the shutter has been set and the slide withdrawn. The picture of the chipmunk was obtained in this manner. In like manner, birds may be photographed at or on their nests. However, the greatest skill is required in stalking wild game in its native habitat. It has been the author's experience that if the photographer approaches directly toward his quarry, the animal will often become immediately alarmed and take flight. However, it has been his experience that if, instead of taking a direct route, a slow circuitous approach is made, one can gradually edge in toward the animal and eventually get within photographing distance. I personally do not seek to secure a large image on the original negative, being satisfied if I can get a small, sharp image, as much as one inch, which later can be enlarged.

I have found that an F 4.5 lens on a 3¼ x 4¼ Graflex, or a .17 inch lens on a 4 x 5 Graflex, give good results.

# THE MULE DEER OF MONTANA

(*Continued from page* 591)

of the dried cornstalks.

Better, far better it would be for the race, should the mule deer still winter in the mountains, battling the deeper winter snows, browsing upon fir needles, snow brush, and tree lichens, and braving the attacks of lean coyotes. In the valleys snow is less troublesome, coyotes are easier to avoid, and food is generally more abundant. But here dwells man, greatest enemy of all.

During the first winter that the deer inhabited this valley, hundreds were killed out of season by residents and by transient laborers in the lumber woods. Dozens more not killed instantly were wounded or crippled by spotlight hunters traveling the highways in automobiles, and breaking three game laws with every rifle shot. On our ranch alone I found the bodies of seven deer that had escaped into darkness to die of wounds inflicted by spotlight killers. This unlawful and infamous practice became common, and proved very destructive; for a mule deer will frequently stand entranced by the glare of the light until struck by a bullet, even though a dozen or more shots are fired.

During the next two winters this disgraceful and unlawful slaughter was repeated. The mule deer did not reach the valley until the hunting season had closed, but killing was carried on throughout both winters. Then in the fall of 1930 the more serious result of the mule deer's change of migration time became evident. During the first few days of the thirty-two-day hunting season, following a light fall of snow, most of the does and fawns inhabiting the Whitefish Range country migrated to this valley. Here where they had become accustomed to man, and had never been openly hunted, the deer showed very little fear of the hunters, who now, for the first time, could kill them legally throughout the farming district. Literally by the hundreds they were shot down almost like cattle from the highways, and everywhere in the cut-over woods of the lowlands. News of the abundance of game spread quickly by telegraph and letter. By day and by night autoloads of hunters from all over the Northwest streamed into the small valley where were gathered a large share of the mule deer does and fawns from a vast mountain range. Within a week scarcely a deer remained alive, and hunters beyond number moved back to the foothills, where the bucks, in search of does, were moving downward. After a month of unprecedented slaughter had passed, the season ended. The killing of deer, however, continued throughout the winter, with but little interference by game law enforcement officers. Spring found the deer alarmingly reduced in numbers. More serious still was the fact that but few fawns escaped the slaughter, and that far more does than bucks were killed; even under most favorable conditions, the increase for several seasons will be much smaller than during past years.

So it is that the mule deer now inhabiting this mountain region, by choosing for their winter range the valleys where men reside, have endangered the continued welfare of their kind. Although the legal toll by hunters has increased alarmingly during recent years through the use of automobiles for quick transportation over new mountain roads into the deer's usual range, this concentration of the deer from innumerable forested, rugged mountains in a few small, settled valleys results in a far greater yearly kill. Protective regulations can be obtained only through action of the state legislature—at best a slow and uncertain process. Furthermore, laws affect only the legal kill; and years of observation and experience have convinced me that in average seasons, sixty to seventy-five per cent of the deer taken in this section of the country are killed unlawfully. Lack of enforcement leads to disregard for game laws; and disregard for laws prevents effective enforcement. Here where game is common this "vicious circle" has been permitted to develop disgracefully.

But perhaps my outlook has been affected by the blackness of the night. Now the meadow before me becomes dimly perceptible as I write, and I can distinguish phantom shadows drifting toward its far edge as the mule deer move into the woods at the approach of dawn. Perhaps there is approaching also the dawn of a new day in game protection and game law enforcement in Montana, as well as in other states. Perhaps the administration of game matters will be freed from the crippling, selfish grasp of politics, and a way will be opened for experienced, open-minded conservationists and men trained in game management and protection to establish a better balance between the welfare of the game, the wishes of sportsmen, and the interests of the great majority of people who do not hunt. And perhaps this great majority, regarding game animals and birds not as a special class of wild life living merely to give man the sport of hunting and killing, but as wild creatures endowed with the same inherent right to live as all natural life—perhaps this majority will awaken to a realization of its duty and opportunity to aid in the conservation and control of game.

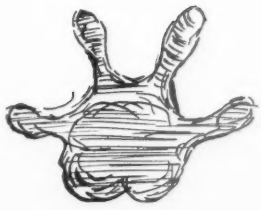
And if this new period is not too long in dawning, perhaps the mule deer of Montana and her sister states may continue for years unnumbered to enjoy the zest of life among the great mountains, forests, and open country of the West, to give the hunter a thrilling chase, and to delight the observing nature lover by day and by night.

# A Forest Page for Boys and Girls

Conducted by WAKELIN McNEEL

## THE RISE OF JOHNNY MUSQUASH

"The North wind doth blow
And we shall have snow,
And what will Robin do then,
Poor thing?"



Life-size track of a muskrat's fore foot.

WE need entertain no alarm for robin. He has heard the shrill blast of the North Wind trumpet and has made his way toward the South. But what will those "poor things" do that have no wings and can't retreat overland to lands of genial temperature and sufficient food? What will the turtle do, and the frog? They would stand a poor chance if migration were their means of escaping the deadly dangers of winter. What would the chipmunk do? What about the woodmouse, the beaver, the hedgehog, and Johnny Musquash, the muskrat? Winter is a time of least heat, least food, least light, least vitality, and, it is safe to say, the time of most deaths. To appreciate what winter really means we must leave the comfort of our artificially heated homes and visit the frozen rivers and lakes. We must see not women clad in coats of "Hudson seal," but the yielders of this fur, the muskrats themselves, in their frozen houses of mud-reed mortar.

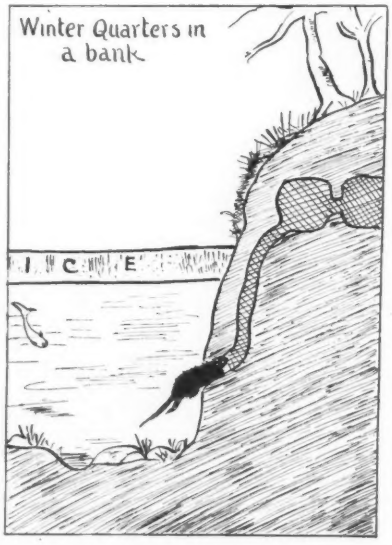
Much of the time and energy of all living creatures is spent in preparation for winter. Man taps the great store-house of energy, the coal beds, that he may sit comfortably by his hearth; he stores the harvests in silo, barn and cellar, and preserves food in jars and cans. The bee works all summer that he may have enough for winter consumption; the chipmunk, equal to the bee in thrift, starts hoarding for the winter before the swallows begin to flock. Johnny Chuck makes a silo of himself by filling his skin to rotundity with fat. In all living creatures there is an awareness that winter is coming and preparations must be made for it.

Johnny Musquash looks for all the world like a giant meadow mouse, with his round head, short ears, black shining eyes and long hairs on his nose and mouth.

The home of Johnny Musquash looks like a hummock and it fits so naturally into the surroundings that unless one knew, he would never suspect that it was a habitation.

Nature has a variety of ways in providing for the winter care of her creatures. These are illustrated in the robin, the frog, the woodchuck and the muskrat. The robin, like most birds, escapes the winter by flight. Some birds, like the junco, partridge and tree swallow, are hardy or foolhardy enough to risk remaining all winter, and when we observe them feeding on the seeds of the ragweed, we discover that even this lowly plant has a place in the scheme of things. But the frog has no feathers, fur, or fat and survives the winter by digging into the mud at the bottom of the ditch. The frost may reach him and freeze him tight, but in the spring he will thaw out and look as good as new. His winter existence is not a sleep; he goes far beyond the realm of sleep. There must be so thorough a stoppage of all activity that it seems

more like "sleep's twin sister, death." His is a most dangerous and mysterious winter sojourn in the ooze, and it is a miracle that with the rise of temperature he can return to life. Yet experiments have been conducted in freezing frogs in a solid cake of ice and upon thawing there was no apparent injury. The hedgehog or woodchuck can't go overland to genial climate so he goes under land. He spends his summer stuffing his baggy hide with every particle of fat he can get into it, and when the great hypnotist waves his wand he crawls into his hole, five or six feet below the surface, and waits for the resurrection of spring. That sounds simple enough, but when one learns what actually takes place he wonders that there is a survival at all. Death is always next door. The heart beats very feebly and irregularly, breathing is weak, the intestinal tract is empty, the kidneys cease to function, or practically so, and the creature loses weight. Life saves itself by "lying low," ceasing to struggle, feeding upon the energy stored as fat in the tissues, gradually starving itself without feeling it. The woodchuck is a warm blooded animal, by which is meant that he has the power to maintain a constant body temperature. Human beings are warm blooded, and the constant body temperature is 98.6 degrees Fahrenheit. If the temperature increases above that point it becomes manifest by a fever; if it falls below, by chills. Yet the woodchuck during hibernation cools to a degree that would be fatal in ordinary life. As the world gets colder and lower temperature makes its way into his winter quarters, the fat burns too slowly to maintain the body temperature, his heat-regulating mechanism no longer functions and Johnny Chuck is saved from death by becoming temporarily cold blooded.

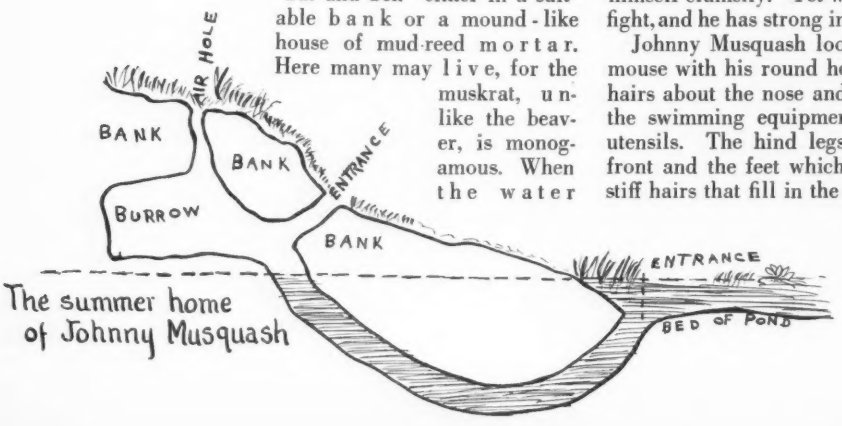



It would be interesting to run down a list of the mammals and inquire what solution each has for the problem of winter. We have seen that birds evade hard times by migration, but this means of escaping is not open to any of the mammals except the bat. The chipmunk stores up food but does not hibernate. How many others can you name that do this? Then there are mammals that neither store nor hibernate, but brave the rigor of the winter, such as the porcupine, fox and skunk. The muskrat neither stores nor hibernates, but builds a "but and ben" either in a suitable bank or a mound-like house of mud-reed mortar. Here many may live, for the muskrat, unlike the beaver, is monogamous. When the water freezes and covers the marsh with a shelter of ice, all winter is left above. The door to the home is below the freezing line and is open the whole winter, as are the many trails;

A MUSKRAT'S TRAIL THROUGH THE MUD

for the marsh is the muskrat's cupboard and it is stored with fresh roots of calamus, blue flag, arum and cattail—the favorite foods of Johnny Musquash.

No animal prepares a more interesting home to escape the winter than does the musquash. First he finds a rather solid foundation on the tussocks of rushes. Upon this he builds with reeds plastered with mud. When his house is finished it has a dome that extends two or three feet above the water; or if occupied by many muskrats and is many chambered, it may be five or six feet high. The walls are a foot thick and so well made that rain, frost, fox, weasel or dog can't get to the living quarters—a snug room just below the dome and above the water line. This room is lined with leaves and moss. The whole house looks just like a hummock and fits so naturally into the surroundings that the uninitiated would pass it by without sensing it to be a place of habitation. What more interesting preparation for passing the winter can you find? Of course, where the banks are suitable, the muskrat may not build a house of mud-reed mortar but burrows into the bank and constructs his living room or rooms. But he is the same species of muskrat, as is shown by the fact that the next winter he may contruct a home of aquatic plants and mud. Yet with all this preparation, Johnny Musquash may make miscalculation. The spring thaws often fill the living chambers and drive the creatures from their homes. They migrate to higher land and are often preyed on by weasels, hawks and owls. Johnny Musquash's main protection is his ability to swim, which he does quite well. On land he handles himself clumsily. Yet when cornered he will put up a fierce fight, and he has strong incisors that are exceedingly effective.




The summer home of Johnny Musquash

Johnny Musquash looks like a large overgrown meadow mouse with his round head, short ears, black eyes and long hairs about the nose and mouth. His hind feet and tail are the swimming equipment but the front feet are the land utensils. The hind legs are longer and stronger than the front and the feet which seem to be partially webbed have stiff hairs that fill in the space between the toes. The tail is about eight inches long, strong, flat and is covered with scales. It serves admirably as a rudder and propeller, and I am told that Johnny issues warning to his companions by hitting the water violently with his tail.

Now we come to a feature of the muskrat that interests every

outdoor boy—how to recognize Johnny by the tracks he leaves behind. We naturally conclude that the imprints of the front feet are smaller than the hind and more defined. This is true. But the main characteristic is the well defined tail print. When the animal jumps, as it must do in the snow, the tail imprint is broken and the feet imprints are in pairs. When walking the trail is continuous and the tail leaves a narrow well defined line.

Our interest in Johnny Musquash is keen because he covers so wide a range from the northern limit of trees to the Gulf of Mexico, has a wonderfully made house, has interesting feeding habits, and also because he is the king of all fur-bearing animals. The outer coat is made up of long coarse hairs but the inner coat is thick and fine. In preparing the pelts for commerce the long hairs are plucked, leaving the soft under coat, which, when dyed and finished, is sold under the name of "Hudson Seal."

It is interesting, this story of the rise of Johnny Musquash. You have read stories of the early days of trapping and traffic in furs, of the times when great fortunes were made, like that of the first John Jacob Astor, in the commerce of furs. Beaver was king then and the muskrat was disdainfully ignored. Every means of pelt-taking was permissible, there was no closed season; beavers were trapped, shot, caught in pitfalls, and there was no bag limit. It was easy to trap them, for their dams betrayed their homes. This persecution coupled with the fact that the beaver is not prolific and could not reproduce in sufficient numbers to keep pace with the demand, made deep inroads in their numbers. In 1903, or thereabouts, a means was practised in Europe of turning the plebeian muskrat skin into the soft beautiful "Hudson Seal." In that year almost 2,000,000 pelts were sent to London for curing, dyeing and finishing. These furs sent abroad as raw hides were returned and sold to American purchasers at many times the original cost. During the World War, when all Europe was seething with military operations, American fur dealers hastened to Europe to learn the coveted secrets of preparing "Hudson Seal." Whole families were literally brought back to America. European fur workers, accustomed to receiving a few pennies a day, received surprising sums over here. They were paid well for knowing how. Now America is the greatest producer, as well as consumer of fur. Between 700,000 and 1,000,000 people are busily engaged during the open season gathering the pelts needed in the fur trade. These trappers exact a heavy toll annually, and the question arises whether or not the fur bearers can stand it without extinction. But Johnny Musquash alleviates this fear. Even though the toll is now 17,000,000 pelts annually, according to some authorities he has actually thrived. There are many factors that bring this about. The muskrat is very prolific, a pair having at least three litters a year with three to eight in a litter. There are laws regulating the time and manner of trapping, and the bag limit. Moreover, the muskrat is not subject to disease and is readily adaptable to changed conditions. For instance, the dry weather of the past two years has dried up millions of acres of marsh land and the muskrat, guided by unerring instinct, migrated to more favorable localities. His instinct is still held in such high respect that the severity of the winter is often prophesied according to the size of his home and the thickness of the walls.

The muskrats have completed their homes; Johnny Chuck is bulging with fat, ready to retire, just waiting for cold weather to produce coma; the squirrels and mice have their storehouses full; the geese have journeyed southward and the gates of the northland have closed.

*The North wind doth blow*
*And we shall have snow—*

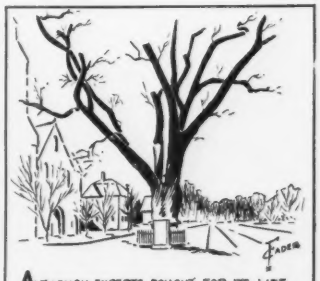
# FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW

## No. 1---THE CAMBRIDGE ELM

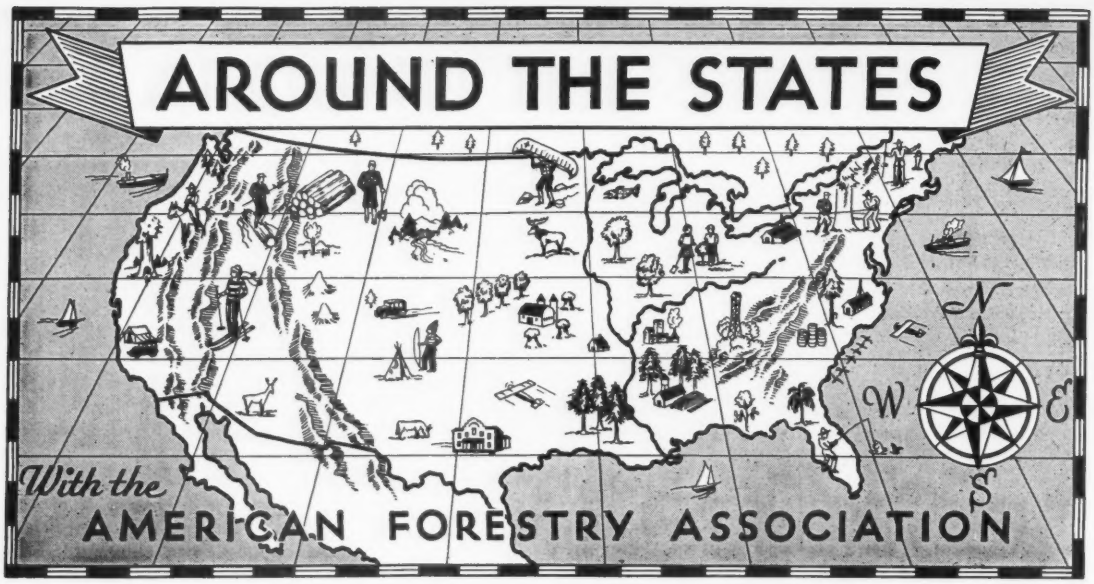
THE WASHINGTON ELM AT CAMBRIDGE, MASSACHUSETTS, IS PERHAPS DEARER TO THE HEARTS OF AMERICANS THAN ANY TREE OF HISTORY. TRAVELERS FROM EVERY NATION HAVE LOOKED WITH REVERENCE UPON ITS GREAT SPREADING BRANCHES, ARTISTS HAVE PAINTED IT, AND POETS HAVE SUNG ITS PRAISES.

FOR THE PAST TEN MONTHS THE WHOLE WORLD HAS HONORED THE MEMORY OF GEORGE WASHINGTON, AMERICA'S GREATEST CITIZEN, WHOSE BICENTENNIAL CLOSES THIS NOVEMBER. THUS IT IS APPROPRIATE THAT EVERY AMERICAN SHOULD CHERISH THE MEMORY OF THE GREAT ELM.

ONE HUNDRED AND FORTY-FIVE YEARS AFTER CAMBRIDGE WAS SETTLED, HISTORIANS HAVE RECORDED, AND ON JULY 3, 1775, GENERAL WASHINGTON TOOK COMMAND OF THE CONTINENTAL ARMY UNDER THIS TREE TO LEAD THEM TO VICTORY AND INDEPENDENCE.



ALTHOUGH EXPERTS FOUGHT FOR ITS LIFE, THE OLD ELM SUCCUMBED TO OLD AGE AND DISEASE IN OCTOBER, 1923, AND WAS REMOVED, HOWEVER NOT BEFORE A NUMBER OF CUTTINGS WERE MADE AND SUCCESSFULLY PROPAGATED TO CARRY ON ITS FAME. TODAY, THERE ARE SCIONS GROWING AT THE ARNOLD ARBORETUM IN BOSTON AND ON THE CAMPUS OF THE UNIVERSITY OF WASHINGTON AT SEATTLE.




# Matilija Canyon Fire Largest in History of California

The great Matilija Canyon fire which from September 7 to September 21 raced over thousands of acres in the Santa Barbara National Forest, in California, was the largest in the history of forest fire protection in California, according to the United States Forest Service. Although it is impossible at the time of going to press to give an accurate estimate of its size, field reports of the Forest Service indicate the length of the fire line exceeded 400 miles. In five hours the flames, driven by a heavy wind, burnd over more than 30,000 acres.

Started, it is believed, by a hunter in the north fork of Matilija Creek, the fire was not discovered until it had gained considerable headway due to its location in a "blind" area—a section hidden from view of the protective force. Then, believed under control, and covering less than 2,000 acres, a driving wind, with a velocity of from thirty-five to fifty miles an hour, sent the flames on a mad race through canyons and over ridges, trapping groups of fire-fighters, threatening communities, and destroying watersheds.

According to S. B. Show, regional director of the Forest Service for California, the fire at one time spread twelve miles air line in less than one hour, burning a strip twelve miles long and five miles wide.

"The fire was discovered by a forest officer and Ranger Baxter left at once, reaching the fire around noon," Mr. Show reported. "A crew of forty men came in later and by five o'clock about two-thirds of the perimeter had been controlled with every prospect of catching the fire up that night. The fire at that time covered less than 2,000 acres. Supervisor Boulden with a follow-up crew was on his way in when the fire was suddenly swept away by an exceedingly high wind and that night reached an area of about 30,000 acres. The first run was to the south and west, crossing the main coast ridge and burning a tremendous area in the Matiliia Canyon drainage. That first rush trapped Supervisor Boulden and his crew in the Matilija Canyon but they managed to escape after several hours.

"During the second day, the fire continued to spread, burning from ten to twenty thousand acres more, but material progress in holding line was also made and the situation did not look impossible until the third day, when the fire ran north and east jumping the Sespe River and going as far east as Mutau Flats. It traveled twelve miles air line in less than one hour, burning a strip twelve miles by five.

"Despite the size of the fire after this, the second night attack was organized to handle all sectors. Actual success was only partial because the flames continued to spread the second night as they had previously. During the first three days of the fire the relative humidity was very low, being down to five in an adjacent station, and wind velocities on the exposed ridges were from thirty-five to fifty miles an hour.

"From the fourth day on, the fire spread almost continuously, running up the north slope of the Topa Topas and over the south slopes, working over the divide between the Sespe and Cuyama Rivers and into the Juncal drainage.

"I want to emphasize that weather conditions remained critically serious for the first ten days. During this long period there never was a time when the fire was not spreading actively. The last major run was on Friday night and Saturday morning, September 16 and 17. At this time, the fire broke through the Topa Topa ridge and ran down to within a few miles of Ojai, burning a large part of the Santa Paula watershed. It then jumped east across the Sespe River and burned about 5,000 acres in the Sulphur Peak country. This run trapped County Forester Emerick and sixty-five men and a woman packer in the Santa Paula country but all escaped.

"It is impossible to tell with any accuracy the perimeter of this fire. By section line it is about 120 miles around the fire and the actual length of line was probably from 350 to 400 miles.

"In my opinion, there was remarkably little line lost. In the Juncal some line could not be held and the run of the 17th out-flanked a section of line on the Topas which had held to that time.

"Two planes were used constantly in scouting the fire. Radios were also used constantly and several of the twenty-five camps could be reached only through this means. The operators experienced a great deal of difficulty in reaching camps which were under the smoke and heat blanket towards the leeward side of the fire. Messages often were slow in coming through during the long spell of active spread of the fire. No particular difficulty was experienced with pack stock although it was necessary to work the animals very hard. An attempt was made to service some of the camps on the Topas by using tractors, but this did not prove very effective.

"As usual, the drinking water problem was a critical one on the high ridges above the Topa Topas and Cuyama. Some labor trouble was experienced because of this fact but, in the main, the supply was barely adequate.

"I consider it very remarkable that we lost no men on this fire. It must be remembered that it was being actively fought on all fronts from the very start and considering the tremendous and sudden spread which took place I believe it is a real tribute to the men in charge of the lines that no casualties occurred. So far as I know there were only two serious injuries, both caused by men falling over cliffs.

"This fire, of course, was the largest that has ever been handled during the entire history of the Forest Service in California and made very heavy demands on the intelligence and capacity of the men in charge. I do not know right now of any major errors of generalship and, on the contrary, I know of many cases of very high class planning."

## New York Plants Most Trees

**Statistics gathered by the United States Department of Agriculture show that the State of New York in 1931 distributed and planted more forest trees than any other State in the Union, about forty per cent of all the trees planted throughout the country.**

**During the year, a total of 41,211,500 trees were distributed from the State-owned nurseries of the Conservation Department, as compared with 23,871,248 trees distributed in the State of Michigan.**

**The large majority of the trees distributed in New York were planted on State-owned land—some in the Forest Preserve, but mostly on reforestation areas, as 1931 was the first year in which the State entered into quantity acquisition and planting of abandoned farm lands under the Reforestation Program. The remainder of the trees were given to counties, cities and water districts for planting on public lands, or sold to institutions, clubs and individuals for planting on private lands.**

## North Dakota County Classifies Soil for Fairer Tax

Determined to attack its farm taxation problem wherever possible with facts instead of guesswork, McKensie County, in Western North Dakota, has inaugurated a comprehensive, exhaustive soil classification as the first step in a new land valuation program. The classification is being made by State workers and the Soil Survey of the United States Department of Agriculture.

Students of soils, taxation, and land utilization have praised the McKensie County commissioners for their progressiveness in turning to scientists for knowledge about their problem. The project is being watched with interest, especially because the county is on the western border of the State and is in what is known as the Northern Great Plains area, or dry land belt. Although not classed as marginal land, the 2,800 square miles of territory of the county lie in a region where rainfall is light and where the correct use of the land is essential to profitable operation.

The soil classification is only the first step, although a fundamentally valuable one, in the county's program of fairer land valuation. After the survey is completed the department will publish a soil map and a report on the county's soils.

## Add to Petrified Forest

The famous "Painted Desert" area, which includes some colorful "bad lands" and a Black Forest of petrified wood, was added to the Petrified Forest National Monument, in Arizona, when President Hoover signed a proclamation on September 23.

The proclamation covers approximately 53,300 acres, of which 23,832 acres were already government owned land and approximately 29,468 acres were privately owned. The territory added is a few miles north of the present monument and a strip a mile wide connects the two areas. The newly-constructed bridge over the Rio Puerco, which was dedicated in July, makes this area easily accessible to visitors from Petrified Forest.

The addition of the "Painted Desert" to the Petrified Forest Monument makes of this a most unique reservation, beginning with colorful marl dunes, spotted with great black petrified trees—some perhaps lying where they fell with stumps and roots undisturbed—then proceding south over a level cactus and sage-dotted plain, crossing the historic Santa Fe Trail, and ending in another petrified forest region, where giant trees that were carried in millions of years ago by flood waters gleam like jewels in the sunlight.

The magnificent "Painted Desert" region was first discovered by Coronado in 1540, and was named by him the "El Pintado Desierto."

## Urge Appropriations for Forest Protection

Continued state and federal appropriations for forest protection and an early return to the original plan of the Clarke-McNary Act was urged in a resolution passed by the Empire State Forest Products Association at its annual meeting in Albany, New York, on October 6. The association endorsed the work of the Timber Conservation Board, and urged that means be undertaken for its continuance, and urged the clarification of the clause in the emergency unemployment act which authorizes the Reconstruction Finance Corporation to make loans for protection and development of forests.

Charles E. Norris, of the Northern New York Power and Light Company, was reelected President of the Association for the coming year. Other officers reelected included Vice-President Thomas H. Sterling, of the West Virginia Paper Company; Treasurer W. Clyde Sykes, of the Emporia Lumber Company; and Forestry-Secretary A. B. Recknagel, of Cornell University. Victor S. Luke, of the West Virginia Paper Company, was elected a new member of the Board of Directors to succeed George W. Sisson, Jr., who as an ex-President will automatically continue to serve on the Board.

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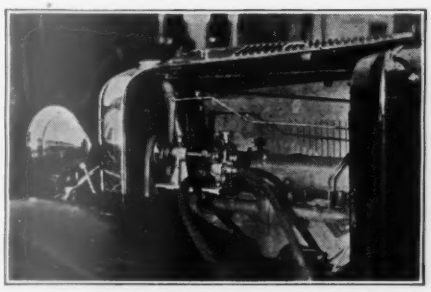

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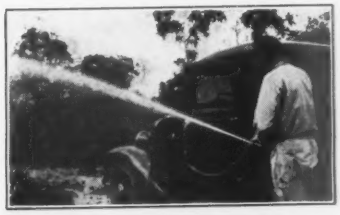

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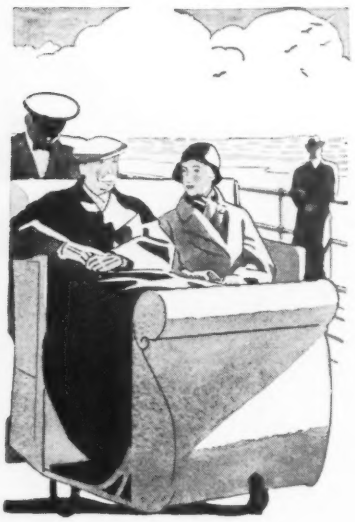

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## Logan Elm Fund Receives Gift

Descendants of the man whom Logan, of the Cayuga tribe, accused in a famous oration of murdering his family, have joined with contributors in an effort to save the Logan Elm, near Circleville, Ohio. The elm is the one under which the eloquent chief delivered the oration destined to gain fame through the writing of Thomas Jefferson and as a recital from McGuffey school readers.

Captain Michael Cresap, accused by Chief Logan, was one of Lord Dunmore's guides on the expedition which resulted in peace with the Indians 158 years ago. Mark W. Cresap, of Chicago, and Logan Cresap, of the United States Navy, descendants of the guide, have contributed to a $900 fund necessary to save the ancient elm from destruction threatened by its age. Logan Cresap received his name from the same source as the tree.

Chief Logan's accusation, since proved erring, was made as an explanation of why he did not desire peace with the white man.

The oration, according to the Jefferson version, began: "I appeal to any white man to say if ever he entered Logan's cabin hungry and he gave him not meat; if ever he came cold and naked and he clothed him not."

The oration continued: "There runs not a drop of my blood in the veins of any living creature. This called on me for revenge. I have sought it; I have killed many; I have glutted my vengence.

"For my country I rejoice at the beams of peace. But do not harbor a thought that mine is the joy of fear. Logan never felt fear. He would not turn on his heel to save his life. Who is there to mourn for Logan? Not one."

## Many Visit Wakefield

More than 50,000 persons visited Wakefield, the birthplace of George Washington, during the first year for which an official travel record was kept, according to the National Park Service. The travel count was begun in July, 1931.

These figures indicate a keen public interest in the historic homes for which Virginia is famous. Although its restoration program is not yet entirely completed and it is not directly on the heavily traveled routes of the Old Dominion, visitors from forty-three states and ten foreign countries, totaling nearly 5,000, were reported for one month recently. During January, the most unfavorable month for travel, approximately 700 persons visited the shrine.

The development program for Wakefield in accordance with the original plans of the Wakefield National Memorial Association and the National Park Service has progressed rapidly in recent months, it was stated. Three ranger historians, students from William and Mary College, Harvard, and the Virginia Military Institute, are on duty at Wakefield for the summer months to assist visitors in securing as much educational benefit as possible from a visit to the shrine.

The plan to establish a museum of Colonial relics in the Mansion is being carried out with gratifying rapidity. Already two exhibition tables, a loan from the National Museum, are filled with interesting articles collected at the site of the birthhouse and the site of the home of Washington's great grandfather, John Washington.

## A Forest That Educates Boys and Girls

H. C. Thompson of Oaklawn, Louisiana, has deeded 425 acres of forest land to the 4-H Clubs of St. Tammany Parish, which lies in the extreme southern portion of the State. The parish once bore a magnificent forest of longleaf pine and was one of the last homes of the Choctaw Indians in Louisiana. Most of the virgin timber, however, has been cut and forestry has become a prominent feature of 4-H Club work in the parish under County Agricultural Agent O. G. Price.

Mr. Thompson's gift to the boys and girls of the parish is the outgrowth of his interest

**H. C. Thompson**

in forestry work which they have been doing. He hopes the gift will provide a practical demonstration of the possibilities of forestry and convince the public that forestry carries the key to much of the land problem of the South. He also hopes that the tract may provide a fund for the higher education of the 4-H Club members of the parish.

"I am getting along in years, without a chick nor a child of my own," said Mr. Thompson. "I have other property and enough to live on comfortably the rest of my life. I like children and told Mr. Price that I was ready to deed this property to them. I know that I may never benefit from it, but if it will be of any help to the boys and girls—and they are our best crop—I want nothing better as a monument."

## Lumber Authorities Study Trade Ills

The League of Nations recently called a meeting of European lumber experts to examine the world lumber situation and to decide upon remedial measures, states a late report from H. C. Schuette, assistant trade commissioner at Paris to the Lumber Division of the Department of Commerce.

The experts are to make an extensive study of the general situation in wood production and commerce, and to devise means of improving the condition of the industry.

## Los Angeles Schools Plant Trees

More than 6,000 trees, mostly native pine, incense cedar and spruce, were planted by the City Schools of Los Angeles, California, during the school year ending June 30, 1932, according to the report of the Forestry Department of the Vocational and Agricultural Divisions of the City Schools, just issued. Although the number of plantings was less than the previous year, it was pointed out, greater care was taken with the young seedlings, and a far greater percentage will survive.

## WESTERN WHITE PINE THREATENED

### Association Declares Blister Rust Disease in Inland Empire Constitutes Forest Emergency That Must Be Met

Declaring that the blister rust disease which is rapidly gaining headway in the great forests of Western white pine in Northern Idaho and adjacent states spells destruction for these forests unless present efforts of control can be continued and enlarged, the Board of Directors of The American Forestry Association, at its quarterly meeting on October 5, declared that the situation constitutes an emergency in forest protection of regional and national concern and one that calls for prompt and serious consideration by local, state, and national agencies. The Board's action was based on a report submitted to it by the Association's secretary, Ovid Butler, after a four weeks investigation of the situation on the ground.

Western white pine as a regional and national resource is concentrated most largely in the Inland Empire and embraces some 4,000,000 acres estimated at between 15,000,000,000 and 20,000,000,000 feet with a normal stumpage value of close to $100,000,000. It is one of the most important resources of the region and the traffic yield by the industries depending upon it is a important factor in sustaining the operation of the several transcontinental railroads intersecting the region.

Within the past five years, the Secretary's report stated, Inland Empire white pine has become widely spotted with blister rust infections, the disease having spread into the United States from British Columbia. "After visiting many of these infections," Mr. Butler declared, "and after studying areas in British Columbia where early infections have had time to show what will happen to white pine when the disease is not controlled, I am convinced that perpetuation of the white pine forests of the Inland Empire cannot be accomplished without adequate control of the disease."

The time required for the disease to destroy the present merchantable white pine as an economic resource, the report stated, is problematical, although blister rust experts place it at about twenty-five years. In the event rust infections tend to stimulate the attack of bark beetles, the period, Mr. Butler stated, may be much less than now thought. "In any event," he declares, "blister rust if not controlled will, I believe, lead to an early period of forced cutting of western white pine in order to salvage the merchantable timber before it is killed and deteriorates. The effect unquestionably will be far reaching upon forestry and the lumber industry throughout the United States in that selective cutting will be out of the question and forced cutting of the great volume of white pine in the Inland Empire will contribute to national overproduction of lumber which already is slowly breaking the back of the lumber industry and depreciating stumpage values to a point that precludes the practice of sustained forest management as a sound business enterprise."

The report stressed the need of immediate action, especially in respect to the stream type of ribes which constitute the most immediate danger of rapid spread of the disease. With the funds now available, governmental agencies are demonstrating control measures in a manner that indicates the situation can be coped with provided more adequate funds are forthcoming. The best of the pine area embraces about 3,000,000 acres of which about one-half is government and one-half state and private land. To date, protection has been provided on about 100,000 acres. Rational control, the report states, calls for an expenditure of between $7,000,000 and $8,000,000 and the enlarged effort should begin at once and extend through a period of the next eight years.

The action of the Board places the Association squarely behind controlling the situation before it becomes out of hand. The Directors voted to support Federal aid in meeting the emergency under such measures and in such amounts as the Federal Service and the Bureau of Plant Industry may consider (1) necessary for the protection of the best pine lands owned by the Government and (2) reasonable for cooperation with state and private agencies. It calls upon state and community interests to make an aggressive effort to help meet the situation through the development of unemployment relief possibilities pointing out that unemployment in the Inland Empire is large and acute at the present time and that blister rust control could absorb unemployed workers at the rate of 150,000 man days per season.

Commenting on this aspect of the situation, the Secretary's report stated, "What possibilities there are for the local states and agencies to obtain financial aid under the present Federal Act to relieve unemployment is not clear. The wording of the Act in respect to forest protection and development is cloudy, and a statement clarifying its meaning has not been forced from the Federal Finance Corporation. The Inland Empire might well make this a test case. The present Act will undoubtedly be subject to amendment when Congress again meets, and if in its present form it does not admit the blister rust situation as a qualified relief project, possibility exists for amendment clarifying its meaning and purpose in reference to forest protection."

Another question considered by the Board at its meeting was the effect further curtailment of appropriations will have upon Federal Forestry activities. Concern was expressed lest economy might be attempted to a point that would threaten the integrity of the Federal forestry organization. After reviewing the situation the Board passed a resolution declaring that in its judgment funds available for Federal forestry have been reduced to the minimum amount at which adequate protection of the capital investment of the government's forest work can be provided, and that further reductions will result in serious and unjustified impairment of the efficiency of the Forest Service.

## BEAR RIVER BIRD REFUGE ESTABLISHED

Formal administration of the Bear River Migratory Bird Refuge in Utah, by the Bureau of Biological Survey, began October 1. The refuge is a marsh area of 64,255 acres at the mouth of Bear River, on the north shore of Great Salt Lake.

About forty per cent of the flooded area has been designated as public-shooting grounds, as provided for by Congress in the act to establish the refuge. The remainder will be administered as an inviolate sanctuary.

The Governor of Utah, the State Fish and Game Commission, and a committee of sportsmen had been consulted in the drafting of the regulations and in the designation of hunting grounds.

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# Book Reviews

INSECT PESTS OF FARM, GARDEN AND ORCHARD, by E. Dwight Sanderson and Leonard Marion Peairs. Published by John Wiley & Sons, Inc., New York. 568 pages, illustrated. Price, $4.50.

With insect injury to American forests and forest products aggregating more than $110,000,000 a year, while all American farm crops suffer annual losses of more than $2,250,000,000, there is evident a very real need for knowledge that will lead to the control of these destructive pests. But their work is so insidious, and so frequently in the field of some one else's interest that the average person thinks of them as some one else's problem. It is not until the brown patches on his lawn become identified with the Japanese beetle, or the tent caterpillars destroy the beauty of his shrubbery, or the roaches infest the cupboards and pantries of his kitchen that Mr. Average Citizen realizes that part of this immense toll of damage is coming out of his pockets.

Several hundred insect pests are described and illustrated in this book by two distinguished economic entomologists. Much information, together with many illustrations have been taken from government and state bulletins, but in the selection, assembling and editing much credit is due the authors. Especial credit is due them for bringing up to date and making available the information on insect control.

The material in the book is not limited to that which bears on trees, in fact, many forest insects are not touched upon, but in accordance with the title, it includes descriptions and control methods for a large number of the "Insect Pests of Farm, Garden and Orchard." —G. H. C.

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ROMANCE OF GEOLOGY, by Enos A. Mills. Published by Houghton Mifflin Company, New York. 245 pages—illustrated. Price, $2.50.

We see what we are trained to see, the author writes, and association with nature develops the faculty of thorough, all-seeing observation. The study of geology and glaciology, observation of the manners and customs of nature, give physical, mental and sympathetic development of the best possible kind. Thus Mr. Mills finds reason for an exceedingly intriguing book, and anyone who finds interest in the horizon and the mysteries that lead to it will, in pursuit of its pages, gain a delightful fellowship with nature. Mirages, rivers as scene shifters, wet spots in the desert, glaciers, the oscillating seashore, fossils, icebergs, the rock cycle, geological characters and the earth's big by-product, the soil, are all explored for the benefit of the reader.—E. K.

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ANIMAL PALS, Edited by Curtis Wager-Smith. Published by Macrae-Smith Company, Philadelphia, Pennsylvania. 150 pages. Illustrated. Price, $1.00.

Here is a collection of the best true animal stories submitted to the Pennsylvania Society for the Prevention of Cruelty to Animals during their True Animal Tales Contest in 1922. This is the third edition in English, with supplemental printings. It is interesting to note that the proceeds from the sale of ths book are used by the Pennsylvania Society for the Prevention of Cruelty to Animals in their animal welfare work.

The stories are delightfully and appealingly written and will be enjoyed by all animal lovers, both young and old alike.—D. H.

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USEFUL PLANTS OF THE WORLD, by Willard N. Clute, second edition. Published by Willard N. Clute and Company, Indianapolis. 220 pages. Price, $3.75.

This second revised edition of a widely used volume to tell "what the different kinds of plants are good for" discusses more than 500 food plants, 300 drug plants, 125 condiments and perfumes, eighty-five essential oils, eighty-two fibers, and gums, rubbers, fats, woods, decorative plants and other useful species in like proportions. Mr. Clute, as editor of the *American Botanist* and author of a score of interesting books, has made a real contribution to those who desire useful information of this nature. It is a book that has a very definite place in the sun.—E. K.


# FOREST EDUCATION

BY

HENRY S. GRAVES, *Dean of the Yale School of Forestry*

AND

CEDRIC H. GUISE, *Assistant Professor of Forest Management at Cornell University*

A STUDY OF THE PROBLEMS OF FOREST EDUCATION IN THE UNITED STATES AND CANADA, CONDUCTED UNDER THE AUSPICES OF THE SOCIETY OF AMERICAN FORESTERS AND SUPPORTED BY A GRANT FROM THE CARNEGIE CORPORATION.

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## New Hampshire Society Meets at Lost River

Mr. Allen Hollis was reelected President at the Thirty-First Annual Meeting of the Society for Protection of New Hampshire Forests, held at Lost River, New Hampshire on September 1 and 2. Other officers who will continue for the coming year are Secretary E. C. Hirst, Treasurer James J. Storrow, Jr., and Philip W. Ayres, Forester of the Society.

The Society pledged its support to help complete the purchase of one thousand six hundred acres on Mount Kearsarge toward which $1,400 has been subscribed. It called attention to the present unjust system of forest taxation, expressed its belief in the severence tax, and declared that forest management can be applied to the relief of unemployment.

The W. R. Brown cash prizes, the prizes of the Society for Protection of New Hampshire Forests, and The American Forestry Association bronze medals for outstanding forestry work by members of the 4-H Clubs were presented to Walter Zolkos of Pelham and Neil Corson, Jr., of Spofford, and to Luthur Preston of Auburn who represented the champion 4-H Forestry Club.

## California Ranger School Opens

The seventh session of the California Ranger School conducted by the United States Forest Service at the Feather River Station on the Plumas National Forest opened early in October with an enrollment of twenty-six students from twelve National Forests, two National Parks and the County of Los Angeles. Six weeks' intensive training in all branches of ranger work will be given.

The students are members of the permanent ranger forces of the organizations represented.

## AMONG THE CURRENT PUBLICATIONS

*Volume Tables*, by D. B. Merritt and A. C. McIntyre of the Pennsylvania Agricultural Experiment Station. Reprinted from Journal of Agricultural Research, Vol. 44, No. 6, March 15, 1932, Washington, D. C.—Tables and graphs supplement the description of constructing tree volume tables.

*An Alinement Chart Method for Preparing Forest-Tree Volume Tables*, by L. H. Reineke and Donald Bruce, United States Forest Service, Technical Bulletin No. 304, United States Department of Agriculture. — Mathematical formulae, tables and charts supporting twenty-eight pages of matter describing the making of tree volume tables.

*Annual Report of the Oregon State Forester*, by Lynn F. Cronemiller, State Forester, Salem, Oregon.—The twenty-first annual report describes the classification of over 280,000 acres under the reforestation tax law of 1929, and a forest fire season with 1621 fires on 188,494 acres causing losses of $885,322, of which nearly one-half was in logs and logging equipment. The State Forester in cooperation with associations of timberland owners patrolled 11,840,343 acres, for which $676.367.57 was expended,—less than two cents per acre.

*Tenth Biennial Report of the Louisiana Department of Conservation*, New Orleans, Louisiana.—Contains the report of Division of Forestry by Director V. H. Sonderegger Out of a total area of 5,597,840 acres to be protected, the Department entered into definite cooperative agreements during 1931 with 296 landowners for the protection of 2,029,904 acres of forest land. During that year 3,241 fires burned over 144,771 acres and the damage was held down to $159,745. Reforestation contracts for the purpose of growing timber on 380,319 acres of cut-over land have been made.

*The Relation of Mycorrhizae to Conifer Seedlings*, by Richard E. McArdle, United States Forest Service. Reprinted from the *Journal of Agricultural Research*, Vol. 44, No. 4, February 15, 1932, Washington, D. C — Studies of soil-inhabiting fungi on the root tips of Norway spruce and northern white pine seedlings in the nurseries of the School of Forestry and Conservation, University of Michigan.

*Experiments in Naval Stores Practice*, by Lenthal Wyman, United States Forest Service. Technical Bulletin No. 298, United States Department of Agriculture.—Description of studies of naval stores practice in second growth slash and long-leaf pine conducted by the Southern Forest Experiment Station at Starke, Florida.

*The Makiling Echo.* Quarterly publication of the Bureau of Forestry at Manila, Philippine Islands.—Contains an extended discussion of the "kaingin" method of cultivation by native farmers, which is responsible for the destruction of large areas of forest.

*The New Jersey State Forests.* Pocket sized bulletin of the Department of Conservation and Development, Division of Forests and Parks, State House Annex, Trenton, New Jersey.—Description with photographs and a map of New Jersey's nine state forests which on June 1, 1932 comprised 45,321 acres.

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Forestry Questions Submitted to The American Forestry Association, 1727 K St., N. W., Washington, D. C., Will be Answered in this Column. A Self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

QUESTION: Rate the three toughest woods that in your opinion would be suitable for unshod runners on a dog sled?—*F. A. L., New York.*

ANSWER: The following woods are suggested: white ash, hickory, white elm, and hard maple. Osage orange, persimmon and green heart are suggested, but they may be difficult to secure. They are all strong resilient woods and take a polish which should be exceedingly helpful in sled work.

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QUESTION: It is my desire to make a den out of a portion of my cellar. I want to use slabs on the side walls, but I am told the bark will come off. Is this true? If so, what would you suggest I do?—K. G. B., New York.

ANSWER: Slabs which are to be used as wall coverings of a den, whether in a cellar or upper portion of a house, should be free of all bark. The continual litter from the falling bark will be a nuisance, and will also harbor insects and moisture. Furthermore, slabs with bark cannot be treated with creosote or other preservative. An effective wall covering can be made with peeled slabs which have been painted or soaked with creosote to prevent the entrance of insects and to protect them from moisture. Farmers' Bulletins No. 1582 and 1660 entitled "Protection of Log Cabins, Rustic Work and Unseasoned Wood from Injurious Insects," and "The Use of Logs and Poles in Farm Construction" are recommended as sources for additional information. These can be secured from the Superintendent of Documents, Washington, D. C.

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QUESTION: I have a white birch tree about twelve years old which is now dying. I first noticed little lumps on the leaves. Then they would turn yellow and fall. Afterwards the small branches would fall until the larger limbs became bare. Then I noticed the sap suckers picking holes around the branches. I painted the holes and tried to keep them away. Would you advise pruning the tree?—J. B. G., Wisconsin.

ANSWER: Your white birch tree is probably being attacked by the birch case-bearer which causes the loss of the leaves and also by the bronze birch borer for which the sap suckers have been searching. One may control the leaf eating insects by spraying the tree during August with a solution of nicotine sulphate—"black leaf forty"—in soapy water. The bronze birch borer is more difficult to control and has probably gone so far that the tree cannot be saved. A small amount of carbon disulphide inserted into each hole with a long nozzled oil can may kill the borers if the holes are afterwards plugged with soap, putty, or clay. In addition to these precautions, break up the soil for twelve or eighteen inches around the base of the tree, give it plenty of water and work some easily available fertilizer into the soil. This can extend out as far as the branches reach.

QUESTION: What can be done to prevent blister rust from spreading from one pine tree to another? Is there anything that can be done to save a tree from dying after it has become affected with the rust? If many of the trees are infected with blister rust, will the entire pine plantation necessarily die?—J. B., New York.

ANSWER: White pine blister rust can be prevented from spreading by destroying all of the currant and gooseberry bushes growing within the pine plantation and for a distance of at least nine hundred feet around it. The disease cannot go directly from pine to pine. It is possible, but seldom practical, to cut out all of the infected tissues on a tree. This will depend upon where the infection is and the extent to which the tree is covered. Cut out every appearance of blister rust for three or four inches back from where it appears. If many trees in a plantation are infected with the rust, there is strong likelihood that the disease will eventually appear on all of them, but if the currant and gooseberry bushes are destroyed all further infection will be stopped.

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QUESTION: Will the grafted pecan trees now sold by nurseries do well on low land that does not overflow but where it is about twenty-eight inches to water?—W. L. Z., Illinois.

ANSWER: Cultivated pecan trees such as are sold by nurseries should grow on low land such as you have described. Excellent pecan orchards grow in Georgia on this kind of land. In fact, some of it occasionally overflows, but if the water stands for only a short time the trees prosper.

---

QUESTION: Is there any tree that when its bark is peeled one can see it shine at night?—K. S., Pennsylvania.

ANSWER: There is no tree which having its bark peeled would shine at night. It is true that many trees when barked will be temporarily capable of reflecting light, but there is no power on the part of any living tree to generate light.

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QUESTION: In April, 1932, your magazine carried an article "An Old World Tree of Commerce," by Inez Hale MacDuff. Kindly tell me how I may obtain further information, as to price and expense of planting an orchard or grove of these trees, and regarding the income.—E. N., New York.

ANSWER: The planting of tung oil trees in units of 100 acres on properly selected lands will cost about $100 an acre, according to B. F. Williamson, of Gainesville, Florida. It will cost approximately $100 more to bring these into bearing after a period of four to five years. Yields are largely theoretical but promise large returns to successful planters and merchandisers.


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## Committee on Elections Nominates New Officers

The Committee on Elections, appointed by the Board of Directors at its spring meeting to nominate candidates for office for the calendar year 1933 to be voted on by the members of The American Forestry Association at the forthcoming annual election of officers, has presented its slate. Under the By-Laws of the Association nominations other than those submitted by the Committee on Elections may be made by twenty-five or more members, provided these nominations are submitted to the Committee prior to November 1.

The officers to be elected for 1933 include President, 21 Vice-Presidents, Treasurer, and three Directors. All except the Directors are elected for terms of one year each. Directors are elected for five year terms. The three vacancies on the Board are occasioned by the expiring terms on December 31, 1932, of Colonel Henry S. Graves, and Messrs. William P. Wharton and W. D. Tyler. The candidates recommended by the Committee on Elections are as follows:

President, George D. Pratt; Treasurer, George O. Vass; Directors, Colonel Henry S. Graves, William P. Wharton, James G. K. McClure, Jr.; Vice-Presidents, Don B. Colton, Utah; Scott Leavitt, Montana; Mrs. Duncan McDuffie, California; George Cornwall, Oregon; H. S. Gilman, California; J. N. Darling, Iowa; Lotis Delta Coffman, Minnesota; William J. P. Aberg, Wisconsin; Samuel T. Dana, Michigan; Alexander Legge, Illinois; C. E. Sherman, Ohio; Dr. Charles H. Herty, Georgia; J. F. Sellers, Florida; L. E. Freudenthal, New Mexico; Walter S. Gifford, New York; Eloise P. Luquer, New York; Dan Beard, New York; Frederic C. Walcott, Connecticut; Dr. Wallace W. Atwood, Massachusetts; Philip W. Ayres, Massachusetts; Mrs. Grace Morrison Poole, District of Columbia.

## Scouts Collect Walnuts for Dan Beard

Emulating their country brothers who hasten to the woods on nutting hikes as soon as the leaves begin to color, Washington Boy Scouts, living in the shadow of the capitol dome, gathered six bushels of walnuts early in October to present to Dan Beard at the Annual Boy Scout Pilgrimage to Mount Vernon on October 15. A feature of this year's pilgrimage to the home of George Washington was the presentation by various Scout troops of the seeds they had collected in the vicinity of the National Capitol. In the afternoon Dan Beard dedicated the National Historical Grove.

Troop 43 of the National Baptist Church, in Washington, under the leadership of Scoutmaster Louis B. Grening, hiked on the first Saturday in October to the grove of young walnut trees by the side of the reflecting pool which mirrors the Lincoln Memorial. There, they collected the nut seeds which entitled them to report to Uncle Dan, the veteran scout and naturalist, that they have had a part in the nation-wide nut tree planting program. Takoma Park Scouts were responsible for the collection of nuts at Mount Vernon; Alexandria, Virginia, scouts participated in the search for seeds from Old Dominion shrines; Pennsylvania and Maryland youngsters combed the leaves on their historic grounds for walnuts.

Permission was granted the District of Columbia Scouts to shake the trees and gather the walnuts in the Lincoln Memorial Grounds by Colonel Ulysses S. Grant, 3rd, Director of Public Buildings and Public Parks. Three brothers in Troop 43, Fred, Lewellan, and Clarence Fernald, set the pace for the Scouts. After they had filled sacks with the seeds that will carry traditions of Lincoln and add to the sum total of nut trees the boys grouped themselves around G. Harris Collingwood, forester of The American Forestry Association, who answered their questions about native black walnut.

The hike to the Lincoln Memorial was one of many going on wherever nut trees grow. These hikes will culminate in Nutting Day Pilgrimages, modeled on the one to Mount Vernon, when the seeds are presented to the council of the National Nut Tree Planting Project which represents Boy Scouts of America, the Department of Agriculture, the American Walnut Manufacturers' Association, and The American Forestry Association.

## South Dakota to Make Lakes Out of Breadlines

South Dakota has started a movement to convert breadlines into lakes for the benefit of agriculture, wild-fowl and recreation, through the use of funds of the Reconstruction Finance Corporation, according to the American Game Association. Governor Warren E. Green, the South Dakota Game and Fish Commission, and the Governor's Relief Committee are searching out development projects in connection with the game commission's water conservation program, that can be started at once.

"Exclusive of the cost of land, it is estimated that approximately ninety per cent of the entire cost of the projects of this nature represents labor and ten per cent material," the Game Commission reported to Governor Green. "Since no skilled labor is required and in view of the further fact that much of the work can be performed with horse power and ordinary farm equipment, it places the relief offered within the reach of all." The Relief Committee has sent out questionnaires to receive applications for impounding water, and, upon these, it will apply to the Reconstruction Finance Corporation for sufficient funds to build the projects at once, thus bringing about relief among the destitute and unemployed before winter comes.

Both South and North Dakota, which also is suffering from a lack of water, began a water restoration campaign with a "Dam It Week," on September 24. Izaak Walton League Chapters, American Legion Posts and field men of the American Game Association are assisting in the water restoration campaigns of both states.

## Federal Funds Allotted for Farm Forest Planting

Allotments of Federal funds to states for cooperative growing and distribution of forest planting stock to farmers, under the Clarke-McNary Act, amount to $71,968 for the fiscal year 1933, the Department of Agriculture has announced. Administration and contingent funds for allotment to new cooperating states brings the total federal fund up to $79,960. For 1932, the fund amounted to $95,000.

An increase in state funds will offset the decreased federal allotments, however, and the 1933 total of cooperative state and federal funds combined is placed at $285,197, as against $275,206 for the fiscal year of 1932. Thirty-eight states and the Territories of Hawaii and Puerto Rico share in the federal cooperative fund for production and distribution of forest trees for farm planting. The trees for farm planting are produced in state forest nurseries and are distributed to the farmers at low cost, through the state forestry departments. There is no federal distribution or sale of forest trees to individuals.

According to state reports to the Forest Service, state budgets for tree production and distribution in all classes aggregate $647,528 this year, slightly more than for 1932.

### WAS IT A GYPSY MAIDEN?

**Was it a gypsy maiden**
**That danced ahead of me?**
**That twirled her scarlet petticoats**
**Audaciously?**

**That wore an orange bodice?**
**That shook a tambourine?**
**The purple mists of autumn were**
**A tantalizing screen.**

**Did I hear wind, or laughter?**
**Was it a gypsy plan**
**To toss where I should pick it up,**
**A red-leaf patteran?**

**Was it a Gypsy maiden**
**That danced ahead of me?**
**Or flaming through the pines and firs,**
**A November tree?**

***Ethel Romig Fuller***

## Reforestation to Provide Work for Michigan Idle

The Director of Conservation, George R. Hogarth, has announced that partial employment will be provided hundreds of men in northern Michigan in fall reforestation work.

Director Hogarth said that the Conservation Department will cooperate with W. S. Carpenter, State Welfare Director, in distributing jobs through local relief organizations. Thousands of acres of State-owned lands are to be included in the reforestation program, he said.

## Autogyros for Forest Patrol

An autogyro was this year placed under contract for air service in forest fire protection for the National Forests of Oregon and Washington, the first time this unique aircraft has been used for this purpose. The "gyro" operated from Seattle and Wenatchee, in Washington, and proved its value because of its ability to hover over trees, to get in and out of canyons, and land and take off on small fields.

## Northeast Organizes for Gipsy Moth Control

Representatives of eight northeastern states met in Albany, New York, on October 7, to discuss the gipsy moth control work and make plans for continuing to hold it within the present area of which the barrier zone along the Hudson Valley forms the western boundary. Concern was expressed over a recently discovered outbreak in the cut-over lands around Scranton and Wilkes-Barre. Pennsylvania is now planning a campaign of eradication.

The present Federal appropriation of $400,000, which is used to cooperate with the states was considered inadequate to meet the needs. An addition of $300,000 was recommended if the moth is to be satisfactorily held in check.

## Indian Chief Honored

The National Park Service of the Department of the Interior and the United States Geographic Board recently honored the memory of the Crow Indian, Chief Plentycoos or Coups, in approving the name Plentycoos Peak for a mountain on the eastern boundary of Yellowstone National Park. This peak, which overlooks the Shoshone River Valley, a favorite hunting ground of the Crow Indians in former years, has an elevation of 10,935 feet. The action to honor this old Indian was taken just two days before his death.


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## GROWING TIMBER FOR PROFIT

(*Continued from page* 601)

on forestry in the United States would change present losses in timber growing to profits and so change the whole economic aspect of timber growing.

Will Congress make an appropriation for such work? The chances are that during the present depression it will not. Furthermore, though the government is the largest owner of forest properties and would benefit should timber growing be made profitable such an appropriation cannot be expected for many years to come. It is likely to take many years before public opinion is awakened to the extent of approving appropriations for anything that seems so visionary as a maturing crop of timber in one-third to one-half the time now taken. Apple growing and rose growing have been made profitable by seeking out the trees or bushes that are greatly superior to ordinary ones and multiplying them vegetatively, but it requires vision to see that the same process will work with timber trees.

## Urge Forestry Board for Virginia

The creation of a cooperative forestry board to supplant the State Commission of Conservation and Development in the direction of the Virginia Forest Service is proposed in a statement made early in October by Max Fleischer, past President of the State Association of Izaak Walton League Chapters.

Mr. Fleischer, in presenting his plan, stated that regardless of what happens to State Forester Chapin Jones, who was recently asked to resign by the commission, "reforestation in Virginia will be handicapped until a new agency is created to take the place of the commission.

"There is no mutual understanding between the commission and Mr. Jones because the commission has failed to cooperate and to understand the importance of a vigorous forestry policy."

The statement says that the members of the commission "are not grounded in reforestation and hence the proposed advisory board should be created, to serve without pay except for expenses and probably meet twice a year for transaction of business."

It is proposed that this board consist of the Governor, Chairman of the Conservation and Development Commission, Commissioner of Game and Inland Fisheries, Commissioner of Agriculture, the State Forester, the Dean of the School of Forestry at the University of Virginia, and six citizens of the State to be appointed by the Governor and chosen to represent—the State's largest lumber organization, public conservation interests, state chamber of commerce, Southwest Virginia, Inc., forest products manufacturing interests, and the United States Forest Service.

## Forest Building Program in Washington

A heavy program of permanent forest improvement work is now being carried out on the 9,534,870 acres within the eight National Forests of Washington. This program is made possible through special relief appropriations of the last Congress and includes a wide range of needed forest development.

Among the many construction items in the Washington project are fifteen lookout houses, four fire towers, thirty-four firemen's cabins, ten ranger station houses, seven barns, eighty public campgrounds, sixteen tool houses, one hundred and thirteen miles of telephone line, twenty miles of pasture fence, ninety-seven stock driveways, ten range water improvements, and sixteen miles of drift fence.

## American Foresters' Annual Meeting

"What's Wrong with Forestry?" is one of the subjects of more than ordinary interest that will be discussed and acted upon by the members of the Society of American Foresters at their annual conference in San Francisco, California, on December 12 to 18. The central theme of the program will be a review of the conservation problems of the nation and the responsibility that their solution places on the shoulders of professional foresters. This subject will be presented to the conference in a keynote speech by Henry S. Graves, Dean of the Yale Forest School.

Other notable speakers will treat of such interesting problems as "Conservation and the National Government," by R. Y. Stuart, Chief Forester of the United States; "The Principles of Conservation in the Use of Wild Land," by S. B. Show, Chief of the California National Forest Region, United States Forest Service; "Parks as a Form of Land Management and Conservation," by Horace M. Albright, Director of the National Park Service. There will also be papers and discussion on the outlook for timber management by private owners, the place of recreation and wild life management in the forest program, and the timber and water conservation problems of forestry.

Ample opportunity will be afforded on December 11 and 13 for delegates to the conference to visit the redwood region, Yosemite Valley, Mariposa Bigtrees and the pine forests of the Sierra Nevada. Following the general meeting in San Francisco, the visiting foresters will go to Los Angeles, where interesting excursions have been arranged into the Sierra Nevada and San Bernardino Mountains to view chaparral watershed management and highly intensive recreational use of forest lands.

## THE WILD PIGEON

(*Continued from page* 598)

of the big nestings in Michigan every day for a period of thirty days. Large numbers were used for trap shooting, as many as 20,000 having been slaughtered in a single match in New York State in the early '80's. Families camped for weeks on the edge of the nestings and axemen cut down the trees that were most burdened with nests, and then gathered the squab pigeons. The squabs were very fat, and the Indians, and sometimes white men, boiled down vast quantities, using the fat thus secured in place of butter and lard. Hawks and eagles hovered over the nestings and robbed them of many young.

"The greatest slaughter of pigeons on record took place during the main colony's nesting in western Pennsylvania in 1880. The entire population of the backwoods, including the Indians from the reservations as far away as Cattaraugus County, New York, began an onslaught on the birds as soon as they arrived and kept it up while they remained, killing them with guns, with clubs, with nets and with traps. It was estimated that the roost or 'pigeon city,' as it was called, originally contained 200,000,000 pigeons, which number was naturally increased to 400,000,000 or 500,000,000 during their stay in the woods. There were perhaps 1,000 persons in the woods for the fifty days that the roost was maintained. Estimating that each person killed 1,000 pigeons a day—a high figure—they could have killed only about one-tenth of the birds, so a vast number more left the roost than came to it.

"Ornithologists who lived when the birds were most numerous, say that the great destruction wrought by man made no perceptible impression upon their numbers. We are therefore forced to the belief that an exceedingly

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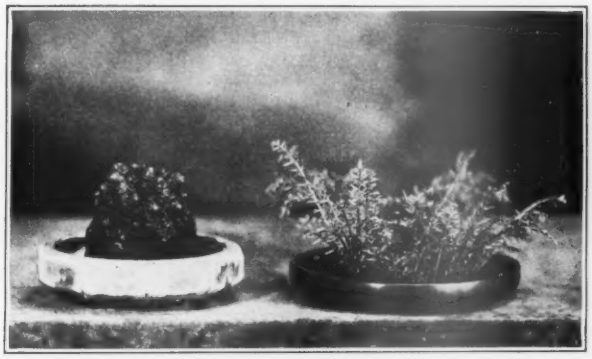

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important factor in their eventual extinction was the destruction of the forests. Wild pigeons fed on mast—a term used to designate the fruit of the beech, oak and other trees. Persecuted, robbed of food and shelter and nesting places, the vast flocks disappeared and the smaller flocks fell an easy prey to the sportsmen's guns, and the few remaining trappers who plied their trade. Many theories were advanced to account for their disappearance. One was that they sought to cross the sea and were drowned. Another, that they perished in a great storm during their migration across the Great Lakes. A third consigned them to destruction during a Texas 'norther,' which drove them out into the Gulf of Mexico, when they were lost. Naturalists and bird students generally reject all these theories.

"A writer in the *New York Sun* in 1899, who remembered the last visitation of the main colony to Pennsylvania east of the Allegheny in 1876, holds to the theory that when the sawmill and the tannery destroyed their haunts in the East and Middle West, the birds were likely driven into some country in the great Northwest, where they failed to find food and starved to death. But regardless of the true cause of their extinction, no large flocks of passenger pigeons were seen later than 1899. The last report of one being killed was in 1900, in Wisconsin, and the last big flock of record being seen in April, 1906, in Greene County, New York, by a friend of John Burroughs. Thus, we have heard of the passing of the wild pigeon. It reiterates the fact that the priceless heritage of wild life found by our ancestors in this country is being rapidly and steadily destroyed and admonishes us to conserve the little that remains."

The nets used were of various construction but followed the general plan of clearing the ground of all vegetation, either on a mud flat with the moist ground saturated with salt peter and aniseed, or on dry ground where the ground was baited with corn, buckwheat, or other food that the flocks were feeding on at that particular time. All pigeons are particularly fond of salt, therefore the "mud beds" were most satisfactory.

Sticks were driven in the ground forming a square at the four corners of the cleared space. The net was then arranged and folded back and by means of springs it could be thrown forward quickly and over the birds that might light or hover over the feed bed. The netters were concealed in nearby blinds, while pigeons were used to decoy the flocks. One pigeon known as the "flier" with a string tied to its legs, was placed on the ground and when the trappers desired by pulling the string, the pigeon would rise in the air at a given distance and hover over the feeding place. Another pigeon, called the "stool pigeon," was set on a tilting perch near the ground in the middle of the bed. This bird was blinded by having its eyes sewed together. The netters, by tilting the perch with the concealed string would cause the blinded bird to lift its wings, much like a pigeon alighting.

When the flock came in and settled on the ground, after being decoyed, the netters pulled the strings at the right time, sprang the net over the beds, and in this manner hundreds of thousands were taken alive. It is claimed that in some instances such great numbers of birds have been netted at one time that they would raise the net in spite of the efforts of the netters and escape.

The last wild pigeon in the world died in the Cincinnati Zoo, September 1, 1914, where it had been a popular attraction for many years. The mounted body of this beautiful bird, the last of its race, is now on exhibition at the Smithsonian Institution in Washington.

## BETWEEN DAYLIGHT AND DAWN

(*Continued from page* 584)

A good half hour elapsed and I dozed in the faint sunlight. Two rapid shots down the river brought me to life just as a large flock of mallards was passing over, too high for shooting. I turned my eyes to the direction that Russ had disappeared, guessing that it had been he who fired the shots.

My heart stood still. Could that be a flock of geese getting up? An extraordinarily large flock—and coming this way. The pessimistic part of my makeup attempted to scoff me into believing they were large ducks but there was no mistaking the great wings that beat slowly and heavily as they took to the air.

Honkers! And coming right over! I slipped the safety on the double and crouched as low in the pit as possible, wondering all the while where Russ was. That little tightening in my throat seemed to choke me and little chills raced up and down my spine. Honkers always affect me in a manner that is not easy to put into words; the same sensations that overwhelm the deer hunter when the greatest stag of them all stands in the rifle's sights. Every time a flock of these magnificent kings swing overhead, their powerful wings whipping the air and their majestic beauty silhouetted against the gray sky, I get something that is far worse than buck-fever.

Coming closer—and low for deadly shooting. I grasped the old double tighter and tried to quiet my nerves. Oh, if Russ were only here to share in this opportunity!

The leader of the flock was flying silently, twisting his head from side to side, watching the earth below for a movement that would betray some hidden enemy. Behind him came his wards, calling noisily, following his every wingbeat. The old gander's beady eyes rested suspiciously on the pit, and my heart missed a beat or two. Would he recognize the danger?

Fifteen yards—and the old leader suddenly swerved from his course, fanning the air for altitude while he squawked the warning. The flock veered as one, like a machine controlled by a single lever. It was now or never and I pulled the black barrels of the double down on the nearest bird.

Wham! He wavered uncertainly, fighting to keep his place with the flock. Another charge hit him squarely and he closed his wings, dead long before he hit the earth.

I turned to see where Russ was and to my surprise he was walking up the river not two hundred yards below me. "Nice shooting," he greeted. "Is he a big one?"

"Never mind the goose," I replied, eyeing him suspiciously. "Where were you when I fired?"

"Oh, down the river a ways," he smiled, running his hand through the feathers of the goose.

"How far down the river?" I demanded while the light of understanding began to dawn upon me. I had a strong hunch that Russ wasn't far off when the flock came over.

"Quite a ways," he grinned sheepishly.

"Why you—you had just as good a shot as I did at that flock. Why didn't you take it?"

"Never mind, you got one, didn't you? What are you beefin' about?"

That's the kind of a pardner Russ is. Always giving somebody else the breaks.

"Hey," he suddenly yelled, grasping me by the arm, "here comes something! The geese again!"

Three of them, and they were almost over us before Russ saw them. This looked like the reward of virtue in person. Russ' double came up, two quick shots and two honkers passed on, still quacking loudly.

## THE YAZOO FLOOD

(*Continued from page* 593)

a rush of soil-laden waters from every gully and cultivated field, while the most torrential rains are seldom seen to produce more than an insignificant surface flow from areas protected by a vegetative cover. The run-off from woodland ravines is usually insufficient to sweep leaf litter and other debris from the drainage lines. A high run-off ratio for the uplands of north Mississippi is indicated by the fact that many of the sand-choked streams which are characteristic of the region rise overnight following a heavy rain and then subside to a minimum flow within a few days.

According to old residents of the region, this erratic streamflow is noticeably different from the behavior of the same streams thirty or forty years ago. Then, owing to the greater prevalence of springs and seeps, streamflow was much more evenly distributed through the year and held up well even during summer droughts. These observations, coupled with excessive stream-filling resulting from accelerated soil erosion, constitute evidence that in this region man's activities in baring the soil to the action of the elements has produced significant changes in surface run-off.

The fact that run-off and soil-erosion problems are acute throughout the upper watershed of the Yazoo River was indicated by extensive surveys conducted by the United States Forest Service several years ago. These surveys showed that in nine upland counties more than 1,000,000 acres of land were barren and actively eroding. In some counties more than forty per cent of the area was badly gullied or sheet eroded, and an additional twenty per cent was under cultivation. When sixty per cent or more of a region is pouring most of its precipitation into the streams almost simultaneously with the rains, disastrous floods are to be expected.

In considering methods of flood prevention and control, much has been said of reservoirs as a means of storing run-off and lowering flood stages. The great natural reservoir, the soil, has seldom been considered. It has been shown that a soil's water-absorbing capacity depends largely on its vegetative cover. This principle can advantageously be applied in agricultural practices. Hillsides that shed destructive surface flows on cultivated fields below should never be cultivated. If already


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TREES AND SHRUBS OF LAFAYETTE PARK. Illustrations and map showing locations of trees in this famous Washington Park. Price, 25 cents. American Forestry Association, 1727 K St., N. W., Washington, D. C.

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*Index to*

## ADVERTISERS

**NOVEMBER, 1932**

| | PAGE |
|---|---|
| American Red Cross | 618 |
| American Telephone & Telegraph Co. | 2nd Cover |
| Bartlett Manufacturing Co. | 618 |
| Bingham, F. F. | 623 |
| Bird-Lore Magazine | 614 |
| Bristol, H. R. | 619 |
| Cannon Company, The | 614 |
| Cannon Company, The | 615 |
| Chalfonte-Haddon Hall | 612 |
| Chatto Tree Surgery Supply Co. | 611 |
| Coolidge, P. T. | 623 |
| DuMaurier Co. | 617 |
| Eastern Garden | 615 |
| Elbert, B. F. | 613 |
| Fechheimer Bros. Co., The | 616 |
| Fiala Outfits, Inc. | 613 |
| Filson Company, C. C. | 613 |
| Fleu, Jr., Conyers B. | 619 |
| Franklin Forestry Company | 619 |
| Harvard Forest | 622 |
| Hough Company, R. B. | 615 |
| Idaho School of Forestry | 620 |
| Keene Forestry Associates | 619 |
| Kelsey Nursery Service, F. W. | 619 |
| Lexington Hotel | 616 |
| Madden, B. L. | 615 |
| Maine University Forest School | 622 |
| Morgan, Ben H. | 623 |
| Morris Nursery Co., The | 619 |
| Naperville Nurseries | 619 |
| Newall & Son | 623 |
| N. Y. State College Forestry | 620 |
| Panama Machinery and Supply Co. | 611 |
| Peacock, J. D. | 623 |
| Polk & Company, R. L. | 618 |
| Remington Arms Company | 4th Cover |
| Russell Moccasin Company, W. C. | 611 |
| Schoepfer, G. | 623 |
| Sewall, James W. | 616 |
| Smith-Gray | 617 |
| Stoeger, Inc., A. F. | 615 |
| Tabor, Rollin H. | 618 |
| Thorobred Kennels | 623 |
| Western Maine Forest Nursery | 619 |
| Wisconsin Aquatic Nurseries | 616 |
| Yale University Press | 614 |


used and abandoned, they should be planted to trees or converted into pasture. The advantages of planting winter cover crops on cultivated lands are apparent. The recent floods in northern Mississippi could scarcely have occurred if an adequate proportion of the land in the region had been devoted to forest, pasture, grain, and hay crops rather than to a bare-soil type of agriculture. Flood control at the source is a concept that well deserves consideration by the southern landowner.

## City Planners Inspect Shenandoah

Delegates to the Bicentennial Conference on Planning, Parks and Government, meeting in Washington late in September, concluded their sessions by a tour of the Shenandoah National Park and the Shenandoah National Forest, in Virginia, traveling for the first time the new Skyline Drive, opened especially for the group by the National Park Service.

Plans for the National Capital and its parks, planning and parks essential to the American home, and citizen support for planning and government were the subjects featuring the meeting, which was held under the auspices of the American Civic Association, the American City Planning Institute, the George Washington Bicentennial Commission, the American Institute of Park Executives, the American Legislators' Association, the National Association of Civic Secretaries, the National Council for Protection of Roadside Beauty, the National Municipal League and the Proportional Representation League.

## Committee Appointed to Discover New Uses for Lumber

A committee of nineteen leaders in the lumber industry and members of the National Committee on Wood Utilization of the Department of Commerce, has been appointed by Secretary of Commerce Roy D. Chapin to draw up a lumber manual for the United States Government.

The chairman of the new committee is George T. Lindsay, an executive of the Weyerhaeuser associated interests, St. Paul, Minnesota. The vice chairman is W. M. Ritter, Ritter Lumber Company, Columbus, Ohio. Both are nationally prominent lumber manufacturers.

Normally the Federal Government purchases 1,000,000,000 feet of lumber a year, representing all species and grades of American woods. Lack of dependable information regarding species and grades for each particular purpose has led in many cases to wrongful and uneconomic use and has resulted to the disadvantage of both producers and consumers.

This lumber committee, representing producers of both softwoods and hardwoods, will contribute the knowledge of the best minds in industry, supported by years of laboratory and practical research.

In addition to Mr. Lindsay, chairman, and Mr. Ritter, vice chairman, the members of the Lumber Manual Committee are:

Fred Arn, Chattanooga, Tennessee; L. S. Beale, Chicago, Illinois; C. Arthur Bruce, Memphis, Tennessee; John M. Camp, Franklin, Virginia; W. L. Clark, Des Moines, Iowa; Wilson Compton, Washington, D. C.; Colonel W. B. Greeley, Seattle, Washington; J. P. Hemphill, Madera, California; H. C. Hornby, Cloquet, Minnesota; Owen Johnson, Manchester, New Hampshire; B. W. Lakin, McCloud, California; C. R. Macpherson, Palatka, Florida; A. S. Murphy, San Francisco, California; F. W. Reimers, Hammond, Louisiana; A. Trieschmann, Chicago, Illinois; J. S. Weidman, Jr., Trou Creek, Michigan; D. J. Winton, Minneapolis, Minnesota.

## WHO'S WHO

### Among the Authors in This Issue

ARCHIBALD RUTLEDGE (*Etiquette Among the Beasts*), well known writer and poet and a conservationist of national repute, has long contributed to AMERICAN FORESTS, most of his work dealing with his beloved "low country" along the southern Atlantic Coast. A native of South Carolina, he now makes his home in Pennsylvania. The best known of his books are *Children of the Swamp and Woods, Days Off in Dixie* and *Peace of the Heart*. He has also published several books of verse.

Winton Weydemeyer

WINTON WEYDEMEYER (*Mule Deer of Montana*) writes that while farming for a living he has time to study and enjoy the flora and fauna of Montana, and claims to have become an irretrievable climber and lover of the Rocky Mountains. He has contributed to AMERICAN FORESTS for a number of years.

WILLIARD G. BIXBY (*Growing Timber for Profit*) is Secretary of the Northern Nut Growers' Association, making his headquarters at Baldwin, New York.

GEORGE A. SIMMONS (*The Covey Comes Home*) is a native of Indiana and interested in all things regarding nature and the outdoors. He has devoted much time to the Rockies, but calls his favorite stamping grounds the Trinity Mountains in northern California.

H. G. MEGINNIS (*The Yazoo Flood and Its Causes*) is a forester attached to the Southern Forest Experiment Station, at New Orleans.

H. O. BISHOP (*The Wild Pigeon*) is a well known writer and newspaper man at Washington, D. C. For the past year he has been associated with the George Washington Bicentennial Commission.

Ray G. Hogan

RAY GWYNN HOGAN (*Between Daylight and Dawn*) might be called a native of Mexico for he has lived there since the age of five. He finds, he writes, much active joy in conservation of the forests and wild life and when not writing devotes his time to quiet days along his favorite stream or lake, hunting, fishing, or rambling about.

WAKELIN MCNEEL (*A Forest Page for Boys and Girls*) has for a number of years been exceedingly active with boys and girls in conservation work. As Assistant State Club Leader of Wisconsin he makes his headquarters at Madison.

JOSEPH S. DIXON (*Through the Lens—Photographing Wild Birds and Mammals*) is Economic Mammalogist of the University of California, although he devotes a great part of his time in making field studies of animal problems. He attended Stanford University and the Throop Polytechnic Institute.

OVID BUTLER (*Convention Sidelights on Reorganization*) is Executive Secretary of The American Forestry Association and Editor of AMERICAN FORESTS.

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The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.


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